

THE FREE WILL CONTROVERSY

BY

M. DAVIDSON



THE TYPOGRAPHY (AND
BINDING) OF THIS BOOK
CONFORMS TO THE
AUTHORIZED ECONOMY
STANDARD

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PREFACE

IN a previous work [*Free Will or Determinism* (Watts, 1937)] the problem of Free Will or Determinism was considered from the points of view of the physicist, the philosopher, and the biologist. Certain conclusions which were attained were based upon the results of research carried out in comparatively recent times by physicists and biologists, though it must be admitted that in many cases the

evidence led to issues which were largely inconclusive. The present work has been undertaken by request of the publishers, and it deals with the subject more from the historical than from the scientific point of view. For this reason criticism of certain doctrines has been reduced to a minimum and the main object of the book has always been kept in the foreground—to present the subject in its historical aspect with a summary of the arguments employed by apologists for each side of the controversy. The severe

the sorrows of a distraught world for the salvation of which they now stand all equally helpless, visualizing but vaguely the reconstruction of shattered ideals.

“Modern science most clearly knows that man belongs to a great world-whole and world-movement; his life and work seem to be completely determined through his relations in this whole; his whole life is subject to an irresistible destiny, and in all his

undertakings and conduct he can only follow the course directed by it. This destiny assumes for us the most diverse forms; and through this diversity surrounds us on all sides.

Through the power of heredity we enter life with a definite nature; in the family, the State, and the society a particular kind of environment surrounds us and gives to our nature its more detailed colouring; the age meets us with particular tendencies, takes us up into itself with a supreme power, and just

as certainly directs us towards certain ends as it diverts us from others."

[Life's Bases and Life's Ideals, translated by Alban G. Widgery, pp 174-5]

It is true that he shows how, in spite of the conflict between fate and freedom, life can be unified and made secure and elevated, and spiritual individuality can be formed. Nevertheless we feel that the problem is continuously with us throughout our lives, and

we are forced to ask at times. "Is there no way out?" If we are part of the whole system of Nature which is controlled by the principle of natural causation, how can we refute the Determinist who tells us that we are bound to behave in a certain way? Even if we argue that we feel a moral responsibility for our actions, this in itself is insufficient to establish the position of the Indeterminist. Whichever view we accept it seems to present an enigma or to make nonsense of life. The contributions which

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INTRODUCTION

The problem of the freedom of the human will still awaits solution, in spite of the fact that philosophers and men of science have offered ostensibly conclusive “proofs” at various periods in the world’s history. With developments in different branches of science and with the enormous strides in psychology in recent times the problem still remains—perhaps it would be more correct to say that it has become more

complicated. Nearly half a century ago Thomas Huxley in his work, *Hume, with Helps to the Study of Berkeley*, assured us that half the controversies about the freedom of the will would not have existed if a saying quoted from Hume's *Treatise Concerning the Principles of Human Knowledge*, Book IV, p 111, had been well pondered by opponents of the doctrine of necessity. The words of Hume to which Huxley specially referred are as follows. "By liberty, then, we can only mean a power of acting or not acting

according to the determination of the will, that is, if we choose to remain at rest, we may; if we choose to move, we also may." As Huxley remarks, commenting on this passage:—

"Nobody doubts that within certain limits, you can do as you like. But what determines your likings and dislikings? Did you make your own constitution? Is it your contrivance that one thing is pleasant and another is painful? And, even if it

were, why did you prefer to make it after the one fashion rather than the other? . . . What they really want to do, if they would upset the necessitarian argument, is to prove that they are free to associate any emotion whatever with any idea whatever, to like pain as much as pleasure, vice as much as virtue—in short, to prove that whatever may be the fixity of order of the universe of things, that of thought is given over to chance" (pp 220—1).

as the nature of time and *human free will*.

A synopsis of the different chapters will assist the reader in following the historical presentation which has been developed in this work. It is perhaps inopportune that the first chapter should deal with Astrology—a subject which will not make a strong appeal to many readers who are only too well aware of the pernicious effects of this superstition, unfortunately resuscitated in recent times. It is impossible, however, to do justice to some of the early

Greek systems without a reference to Astrology, which had a profound influence on their development. This is particularly true of Stoicism, which, in spite of its beneficial influence in many ways, was nevertheless vitiated by the astral fatalism of the Chaldeans. This is shown in the second chapter, which deals with Greek philosophy in as far as it includes the problem of the freedom of the will or a deterministic system.

Chapter 3 is almost entirely theological in its

Creator Himself. These points are considered in Chapter 4.

Leaving theological controversies, the next chapter deals with the philosophy of Descartes, who, while asserting that animals were mere automata, saved the freedom of the will for human beings by means of the pineal gland. It is remarkable that his view regarding the power of the mind to alter the motion of the "animal spirits" is something like Sir Arthur Eddington's argument regarding the effect of the

This applies not only to Christian theology but to other systems too. As is well known, the subject of predestination has produced endless controversies in Islam. The orthodox view is that good and evil take place by the predestination and predetermination of God, and that He may have wise ends in sight which we cannot comprehend, and hence it is unnecessary to ask why He wills and produces evil. Some Mohammedan teachers have endeavoured to maintain the consistency of

to produce the spirit of sacrifice, the minds of some may recoil like the Stoics of old from a pessimism which clouded the thought of the ancient pagan world. Or perhaps others will remain unmoved and indifferent. Wearied of the effort to find the solution to the enigmas and perplexities of life, they may be able to endure:

**“The slings and arrows of
outrageous fortune,”**

even if such an endurance is accompanied by the

Epicurean pessimism of
Omar Khayyam:—

**"Tis all a chequer-board of
nights and days
Where destiny with men
for pieces plays:
Hither and thither moves,
and mates, and slays,
And one by one back in
the closet lays."**

To such speculations posterity may provide an answer.

CHAPTER 1: BABYLONIAN ASTROLOGY

ASTROLOGY may not appear to have any connection with the subject discussed in the present work. It must be remembered, however, that astrology had an important influence on Greek and Roman thought during a certain period, and it will be necessary to consider this influence at a later stage. Among ancient races the Babylonians were prominent for bringing magic into a pseudo-scientific state, and

skill in astrology. Although the Greeks used oracles, dreams, entrails of victims, flight of birds, etc., they were indebted to the Babylonians for astrology, which was introduced after the time of Alexander. Cicero assigns a great antiquity to the astrology of the Babylonians, making it go back 272,000 years! It is certain that astrologers had a very important influence on public affairs In the Book" of Daniel

[The events recorded in this Book refer to a period about 600 B. C. The Book

influence in the scheme except so far as they composed the signs of the zodiac. The star which looked down upon a child at the time of birth was called the *horoscopus*, and the Chaldean astrologers were called the *genethhaci*, as divination was always founded upon a birth. The idea of divination from birth was transferred to communities also, so that the fortunes of a city could be foretold from its natal day. Even the nativity of the world was brought within the sphere of astrology, and it was believed that the sign

sunshine and happy meadows. From the Twelfth and last Epic of Gilgames we gather that the world beyond the grave was a place of unspeakable dreariness—a land of darkness where all things were forgotten and where even its denizens were forgotten of men. In some respects it resembled the Hebrew Sheol, the description of which, given in the Book of Job, 10:21-2, indicates the indebtedness of the Hebrews to the Babylonians for some of their religious beliefs. In the gloom of that

the weather with the appearance or disappearance of certain stars or constellations. There was nothing occult about this, and in a sense it could be called scientific; even in our own very uncertain climate it is possible to see some connection between the state of the feather and the rising of certain constellations at different periods of the night. Thus, when the constellation of Orion is visible in our islands we usually associate it with more or less cold weather. Unfortunately

CHAPTER 2: THE PROBLEM IN GREEK AND ROMAN PHILOSOPHY

IN the Homeric poems the power of Zeus is displayed as a capricious and irritable will, or else as a Fate which opposed and disappointed men's inclinations to be just. In Hesiod it has reached a higher standard, and is the decree of a conscience which judges impartially in accordance with certain rules. Those who have transgressed are punished, as are those who have slavishly made themselves

accomplices of the crime. In the *Iliad* and *Odyssey* anthropomorphism has attained its zenith, and we find that Olympus is inhabited by men and women of a supernatural nature. The gods fall short of the ordinary human beings in morality, and the immortality which is offered can scarcely be described as attractive or even desirable. The presence of Fate stands forth more or less definitely outlined, and the consciousness of mortality and of man's impotence darkens much of the early Greek reflection on human

life. The tragedians show us the utter helplessness of man in his struggle against fate. Sometimes fate is identified with the Nemesis which pursues guilt, whether it be hereditary or individual; sometimes the predestined and inevitable transgression and the punishment which follows educate the character. But the main idea is that man cannot escape his destiny and if God means to destroy a man He presents evil to him as good. Only to gods in heaven comes no old age, but even the gods cannot save men from death. As the

death of princes was associated with the downfall of States, the latter are under the inflexible decrees of destiny which the gods can postpone but are powerless to avert ultimately. That the pronouncements of the poets were taken seriously is due to the fact that in Greece the poets took the place of the prophets and were the religious as well as the ethical authorities. The poet was often called to account because of his moral sentiments. It would scarcely be correct to say that the poet was entirely responsible for setting the

taints of crime from generation to generation. In their mythology Ate was the personification of criminal folly (*Iliad*, 19, 91), and she had misled even Zeus to take a hasty oath when Heracles was born. For her offence she was cast out of Olympus, and did not return, but fell, it was said, on the hill where Troy was built. She always remained a mere allegory, never assuming the individuality of a goddess, but is described in the *Iliad* as a swift-footed being who leads people into crimes. The word was used to denote the state of a person

who is dominated by some irresistible motive urging him on to destruction. Those who occupied higher stations in life were supposed to be specially afflicted because their prosperity lifted them near that felicity which is the prerogative of the gods, who then display their justifiable anger against them. Herodotus and Aeschylus see the judgment of the gods on the eastern despots who attempted to destroy the freedom of the Greek cities in the Persian wars.

Enough has been said about the poets and

historians, and certain philosophic movements will now be considered. In the science of nature the starting-point is far removed from the anthropomorphism of Homer. Xenophanes, the reputed founder of the Eleatic school of philosophy, who was born in the third or fourth decade of the sixth century B.C., scoffs at the anthropomorphic and anthropopathic polytheism of his contemporaries. He pours contempt on the belief that gods have senses, voices, and bodies

like men, and reproaches Homer and Hesiod with attributing to the gods things that are a shame among men, such as deceit, theft, and other lawless acts. Even if we regard Xenophanes as a pantheist and merely asserting the unity of Being, it is obvious that in his days it was quite a safe procedure to attack the Homeric pantheon. It is generally recognized that Thales of Miletus (640-546 B.C.) was the founder of Greek geometry, astronomy, and philosophy. The problem upon which Thales and the

philosophers of Miletus concentrated their attention was that of change. The world presented a spectacle of perpetual transformation, but what was this one thing which took so many shapes? Thales said it was water, Anaximander thought that it was not only water but also its opposite—fire, Anaximenes identified the primitive substance with air, or rather with mist or vapour. The Milesian school came to an end in 494 B. C., when the Persians destroyed Miletus. As the present

work is limited to such philosophical tenets as have a direct bearing on the subject of freedom of will or determination, it is unnecessary to consider all the systems which arose in Greece from the sixth century B. C. The teaching of Democritus, one of the founders of the Atomic philosophy, will now be dealt with. Democritus was a contemporary of Socrates, but the exact date of his birth is uncertain, it has been fixed on various years from 494 to 460 B. C. Of all the materialistic explanations of the

universe put forth by the Greeks, that of Democritus has held the primary place in philosophical thought. Atoms, according to Democritus, are the ultimate material of all things, even including spirit, and have existed from all eternity. Although they are invisible, they are extended, heavy, and also impenetrable, and vary in shape. Atoms are in continuous motion, which, like the atoms themselves, is eternal. The world and all that it contains were produced by the motion of the atoms, and it is thought

by some that Democritus taught that there is an innate necessity by which similar atoms come together Soul and fire were held to be of one nature, and the atoms composing them were small and smooth. Life was maintained by inhaling and exhaling these atoms, and it followed that the soul perished, with the body. The system denied that the creation of the world was due to reason, and there is no doubt that Aristotle's condemnation of this part of the teaching of Democritus was a great

philosophy. It is unnecessary to deal with the earlier work of Leucippus, and we shall now consider the influence of Democritus on the Epicureans.

Epicurus (342-270 B C) based his physics on the teaching of Democritus, and his main object was the abolition of the dualism between mind and matter. Atoms and the void are his fundamental postulates, and the atoms in their perpetual motions are always giving rise to new worlds which, in their turn, are perpetually tending

towards dissolution and towards a fresh series of creations. Divine intervention is eliminated, and the gods, the existence of whom is not denied, have no responsibility for upholding or directing the world. Like Democritus, Epicurus objects to the doctrine of mythology and he also objects to the doctrine of an inevitable fate—that is, a necessary order of things which remains unchangeable and supreme above human will.

“Better to accept all the

legends of the gods than to make ourselves slaves to the fate of the natural philosophers.”

Fatalism seemed to Epicurus as deadly to man's true welfare as the popular superstition. It is remarkable that this view should be held by one who accepted Atomism, but in the movements of the atoms Epicurus introduced a sudden change in direction, so that their aggregation was rendered easier, and in this way the law of destiny was broken

regard either Epicurus or his chief followers as sensualists, and indeed there is nothing to show that they recommended, either by precept or example, self-indulgence as the best means of attaining their goal. A discussion of the ethical side of the system is outside the province of the present volume, but it may be remarked that the work of Lucretius (96-55 B.C.) is a proof, if such is needed, that Epicureanism is quite consistent with great nobility of soul, though it taught that the death of the

body was the end of everything for man, and hence the other world held out neither hopes nor terrors. The Epicurean school was confronted by another, founded at the end of the fourth century B.C. by Zeno. It took its name, not from that of its founder, but from the *Stoa* or porch in Athens where he taught. The Stoics opposed the Epicurean doctrine that pleasure was the chief good and taught that virtue was the *summum bonum*. For centuries the two schools attracted adherents, between whom endless

was the real secret of happiness and serenity. The world as a developed whole was looked upon as an organism permeated with the divine Spirit, and in a sense the world process might be regarded as a self-realization of the divine Being. Although the Stoics claimed the citizenship of the world, this did not prevent them from acknowledging the narrower citizenship. The former claim was based upon the conviction that the universe contained a wonderful and beautiful order, and those who could

discern this could show their devotion just as the patriots could to their native city. It is not surprising that Stoicism found a ready response in Rome. The view that the world was a commonwealth in which private interests must be subordinated to the public weal was congenial to Roman tradition. This conception of the solidarity of the universe, fundamental in the system, contained much akin to the astral fatalism of the Chaldeans, and, while Stoicism contributed something to

CHAPTER 3: THE HEBREW CONCEPTION OF THE ORIGIN OF EVIL, AND ITS IMPACT ON CHRISTIAN THEOLOGY

THE question of free will or determinism in Judaism and Christianity is closely associated with the problems of predestination and of the origin of evil in the world. For this reason it will be necessary to digress from the main thesis to consider the chief explanations which have been offered to account for sin and how it first

Before this legend was accepted, however, there was another story of an unsavoury nature, narrated in Genesis 6:1-7, in which we are informed that fallen angels — “the sons of God” — married the daughters of men and as a result of this union a race of giants (the Nephilim) appeared who filled the earth with violence. These fallen angels are referred to in various parts of the Canonical Books as well as the Apocrypha, and are known as “the watchers.” In the Book of Daniel they are frequently mentioned;

chapter 5. The probable meaning of 6:3 is, "My spirit shall not abide in man forever, for in his going astray he also is flesh; therefore shall his days be an hundred and twenty years." As the elimination of the divine, either through fear of the ultimate power of the Nephilim or through jealousy, was going to be a slow process, Yahweh next decided on a speedier method by which they would be destroyed, and there follows the account of the Deluge. In verse 5 we read of Yahweh's opinion about man—that

birth, and hence no one inherits a tendency to sin from his parents nor does he transmit such a tendency to his children. The *yeger* was not implanted to make people sin, but it was considered to be a necessary pre-condition of moral virtue. At the beginning of the Christian era there were these three theories to account for the origin of sin (1) the legend of the apostate angels, which, however, presented certain difficulties, one of which was the fact that sin was in the world after the Deluge;

(2) the legend recorded in Genesis in, which was later accepted in Christian theology; (3) the Rabbinical doctrine of the evil imagination. There is nothing in the Gospels to show that Christ approved of any of these theories, but we cannot base very much on the argument from silence. There is a remarkable figure to illustrate the wickedness of His days, mentioned by St. Matthew, 12:43-45, and also by St. Luke, 11:24-6. It tells of the expulsion of an evil spirit from a man and its subsequent

prophesying with her head uncovered has obviously some connection with evil spirits; “For this cause ought the woman to have a sign of authority on her head, because of the angels.”

The “angels” here is probably a reference to the watchers who are mentioned in other parts of the New Testament, Jude 6, 2 Peter 2:4. Some think that there was a current belief that evil spirits whispered wicked suggestions into women’s ears and that they were more susceptible to such

theological system which, in theory, still remains, in spite of the progress of anthropology and of the downfall of man cherished beliefs through the acceptance of biological evolution. There is nothing, however, to show that Christ accepted the Adam story.

In St Paul's Epistle to the Romans, chapter 5, there is a summary of his views on the Fall. The present work is not a treatise on theology, but it will be necessary to consider St Paul's teaching, as it had a profound influence on the

future of Christianity. It is probably correct to say that if there had been no St Paul the religion of Europe would not have been Christian. Instead of quoting the various portions of this chapter, which is difficult in parts both in language and in the links of thought, it will be better to give a brief explanation of what was in the mind of the writer, more especially in verses 12-21.

The primary object is to bring out the wonderful grandeur and extent of the work of Christ in contrast

with the devastating effects of Adam's transgression. The results of the Fall were found not only in inherited sinfulness, but also in inherited guilt—the liability to punishment on account of the primeval sin—and this punishment was physical death. As some (e.g. infants), who have not committed actual sin, die, the explanation is that they die on account of inherited or perhaps vicarious guilt. He then proceeds to extol the glorious difference between the work of Adam and that of Christ—a difference exhibited in the

they are devoid of historical bases and, in the nature of the circumstances, are outside the range of scientific investigation, no useful purpose would be served by discussing them.

It is remarkable that during the Sub-Apostolic Age, about 120 years after the death of St Peter and St Paul, there is very little reference to the Adam Fall theory. The Epistle of Barnabas, which is assigned different dates, A.D 70-9 by Lightfoot, but A.D. 130 by others, points out a parallelism between the serpents in the

wilderness and the serpent of the Fall. It has already been mentioned that the Second Epistle of Peter, probably written about AD 150, refers to the Watcher theory. The Shepherd of Hermas which was written after AD 90 appears to assume the *vecei* doctrine. This doctrine is also assumed in the Epistle of James, 1:14, which was written much earlier than The Shepherd of Hermas. Before Justin Martyr, who wrote about A.D 150-55, we find that the only reference to the Adam Fall story appears in the Epistle of

high, but nowhere does he advocate the odium which is attached to them in the writings of Tertullian. He maintains that a woman should go about in a humble garb, mourning and repentant, so that she can expiate that which she derives from Eve, the ignominy of the first sin, and the odium attaching to her as the cause of human perdition. In *De cultu femmorum* 1:1, he says: “Do you not know that you are an Eve? The sentence of God on this sex of yours lives in this age; the guilt must of necessity live too.

adequately with the controversy on this subject, and it will serve the object of this work better if the views of a few outstanding theologians and philosophers are considered. The first of these, and the one who more than any other has left a permanent impression on Christian teaching, is St Augustine, Bishop of Hippo (A. D. 354-430). His early life, the story of his conversion, his *Confessions*, and much of his work are all so well known that it would be superfluous to say anything

CHAPTER 4: THE CONTROVERSY FROM THE DAYS OF ST. AUGUSTINE TO THE TIME OF THE REFORMERS

THREE great controversies threatened the peace of the Church during the days of St Augustine, and a considerable amount of his time and energy was spent in combating these. His attack on the heresies of the Manicheans and the Donatist schism need not take up our time, and we shall deal with his attitude towards the Pelagian

mankind die, neither is it true that because of Christ's resurrection all men rise again; (5) infants, even if unbaptized, have eternal life; (6) a man can be sinless, and keep God's commandments without difficulty, insomuch that even before the coming of Christ there were men who were entirely without sin; and the Law leads to eternal life as well as the Gospel. Although St. Augustine was not present at the Council which anathematized these propositions, he approved its decisions and soon

Rheginum. Faustus was a very strong opponent of the doctrine of arbitrary predestination, and he also advocated, as some others did, the necessity for the co-operation of the divine and the human will. Without going fully into the history of the controversy, it will be sufficient to deal with the final result. In A D 529 Pope Felix IV summoned a Synod at Orange in Southern Gaul, and amongst the points which it settled the following were very important for the future of the Church:—

(1) By the sin of Adam, free will is so weakened that henceforth no man can love God in a suitable manner, believe in Him, or act for God's sake, unless grace has first come to him. Thus that glorious faith of Abel, Noah, Abraham, Isaac, and other ancient Fathers, on account of which the Apostle praises them, was imparted to them, not through the natural goodness which was in the beginning given to Adam, but by the grace of God. (2) All, however, are able, after they have received grace through

“. . . for sin is nothing at all—only a negation, and punishment is simply the displeasure of the sinner at the failure of his evil aims. Sin lies outside of God, and does not exist for Him at all He does not even foreknow it, much less foreordain it, for God knows only what is.”

While this orthodoxy was considered more dangerous than the heresy which it was supposed to combat, perhaps it was fortunate for Scotus that it was too abstruse for proceedings to

Thomist doctrine is that the divine will, like the human will, is subject to rational determination, so that right is not right because God wills it, but that God wills it because it is right. There are some theologians who hold this view still, and who maintain that moral distinctions are antecedent to the divine commandments. The question of the objectivity of moral judgments is, however, outside the present inquiry.

The view of predestination which is based on the idea that God

his depravity that human nature had lost one of its essential faculties—that of knowing, loving, and serving God. Man has no more power to turn to God than a stone or a tree-trunk.

The Reformation implied an Augustinian reaction with a restoration of Paulinism, the Bible being substituted for the authority of the Church, and St. Paul's Epistles were the kernel of the Bible. Calvin believed that infants, the moment they were born, were odious and abominable to God. Both Reformers were

The beliefs of many on the matter are of a very vague character, though officially the members of the various religious bodies are supposed to be guided by creeds or some forms of doctrinal tenets. In the Church of England, Articles IX, X, and XIII contain strong affirmations of the Augustinian conceptions. In common with Augustine and the Reformers, Article XIII asserts that works done before grace have the nature of sin. The Council of Trent decided that the virtuous actions of pagans are not sins, and most

readers will agree that the Roman Catholic view contains more truth than the Anglican. Of course private interpretation in the Church of England is allowed to a very much greater extent than in the Roman Catholic Church, and general assent to the Articles does not necessarily imply that they are agreed to in detail as formulating theological views which must be accepted by everyone. As an instance of this private interpretation the following quotation from Dr. Cyril Alington is interesting. In

Chapter 12 of his work, *The Fool Hath Said*, he says “To condemn generations yet unborn on account of the sin of Adam could hardly be just, and if that were indeed the Christian belief we could hardly hope to commend it to the national conscience.” He goes on to show that such a doctrine has little relation to Jewish or Christian belief, and informs us that *St. Paul’s authority cannot be claimed as superior to Christ.* But does Dr. Alington realize that undermining the authority of St. Paul is really

Talmud and the Old Testament, the view that Christianity is unique in the religions of the world would scarcely be tenable. Dr. Alington goes still further in the work of destruction. Dealing with Article 17, which is concerned with predestination and election, he tells us that the Articles were drawn up with the laudable motive of minimizing the difficulties which divided us from Continental Protestants. To secure their support we went farther than we wished, and our purpose

CHAPTER 5: THE PROBLEM AS PRESENTED BY DESCARTES'S PHILOSOPHY

WE now reach a stage where society was passing through a transition from the ecclesiastical to the secular ideal. The necessary conditions for such a change had been brought about by a great movement which combined various aspects and is known as the Renaissance. The drama of human life had previously been played on the stage of "heaven and earth," but

thought opened up a new and extensive vista hitherto undreamed of. In such an age, when authority was shifting from the ecclesiastical arm and when many of the old tenets which once had been accepted as the very bulwarks of society were being discarded, it is not surprising if men should look for some sure basis on which to erect a system that would satisfy the intellectual cravings of the time when certainty seemed to be built on a foundation of sand.

Rene

Descartes

sceptics, who doubt only that they may doubt and seek nothing beyond uncertainty itself; for, on the contrary, my design was singly to find ground of assurance, and cast aside the loose earth and sand that I might reach the rock or the clay.” Modern philosophy is generally considered to have started with Descartes, and a brief survey of his system will now be presented. It must not be expected, however, that anything more than a mere outline which is relevant for the purpose of this book will be given.

Readers who are interested in his philosophy will find it profitable to consult his various works, a list of which is given at the end of the chapter.

Starting with the fact of consciousness, and doubting everything else that could be doubted, the first step to attain the wider reality which was provisionally doubted is to prove the existence of God. This proof is substantially as follows.

Of the numerous ideas which we find in our mind some appear to come from our own nature, others to

have originated from my own nature, I can feel certain that there is a commensurate cause outside of me. It is true that in most cases I can discover nothing in my ideas which requires more than my own nature to produce, but there is one outstanding exception — the idea of God.

“By the name God, I understand a substance infinite (eternal, immutable), independent, all-knowing, all-powerful, and by which I myself, and

every other thing that exists, if any such there be, were created. But these properties are so great and excellent, that the more I consider them the less I feel persuaded that the idea I have of them owes its origin to myself alone. And thus it is absolutely necessary to conclude, from all that I have before said, that God exists; for though the idea of substance be in my mind owing to this, that I myself am a substance, I should not, however, have the idea of an infinite

substance, seeing I am a finite being, unless it were given me by some substance in reality infinite”

[Meditations, 111]

Here, then, is the bridge between myself and external reality, and the real existence of God must be postulated as the only being great enough to explain the presence of the idea of God which undoubtedly exists. The independent isolated self which is presupposed in the argument, “I think,

cause of our errors

“The first attribute of God which here falls to be considered is that He is absolutely veracious and the source of all light, so that it is plainly repugnant to Him to deceive us, or to be properly and positively the cause of the errors to which we are consciously subject”

Hence we must discard the doubt in the existence of matter, otherwise God would be responsible for making us believe a lie.

It is not within the province of the present treatise to offer a detailed criticism of any system, as its object is merely to present the historical side of the controversy on free will or determinism. It may not be out of place, however, to remark at this stage, what many readers probably know already, that Descartes's arguments for the existence of God and of the external world are not very convincing. In proving the former, the non-self, as we have already pointed out, is identified with God, but

deception would arise only if a thing was false which we see clearly and distinctly to be true. The only quality which can be conceived clearly is extension, and this is evident from the fact that the truths of geometry—the clearest of all sciences—apply to extension. In his physical philosophy he attempted to explain everything on mechanical principles, and his conception of a purely mechanical world is the basis of modern Materialism.

The essence of matter is extension, and it is infinite

nothing in the matter moved but its mode, it has yet a certain and determinate quantity, which we easily understand may remain always the same in the whole universe, although it changes in each of the parts of it. So that, in truth, we may hold, when a part of matter is moved with double the quickness of another, and that other is twice the size of the former, that there is just precisely as much motion, but no more, in the less body as in the greater; and

that in proportion as the motion of any one part is reduced, so is that of some other and equal portion accelerated".

The mechanical nature of the universe was extended to comprise all creation, human beings included, though with certain reservations which will be noticed later. In the world of matter nothing could be admitted which suggested self-determination. All its energy must be communicated, not self-originated, and hence

brutes are only automata. Their bodies are part of the material world, and they are subject to the same mechanical laws that govern other things. Although Descartes spent a lot of time in dissecting, he found no reason for modifying this view. Animals are simply material things more complex than the rest, and their life is the expression of the complexity of their mechanism. It is unfortunate that some of the Cartesians applied this theory even to the extent of treating animals with

extreme seventy. When Malebranche was rebuked for mercilessly beating a friendly dog, he replied “You don’t suppose it feels?” Vivisection was practised by Descartes’s followers without the slightest compunction, although Descartes himself frequently said that it would be better to treat animals as though they did feel, *in the interests of moral training*. He was aware of the difficulties besetting him in his view that animals were only automata, as the following passage will show:

“The greatest of all the prejudices we have retained from infancy is that of believing that brutes think. The source of our error comes from having observed that many of the bodily members of brutes are not very different from our own in shape and movements, and from the belief that our mind is the principle of the motions which occur in us—that it imparts motion to the body, and is the cause of our thoughts. Assuming this, we find no

difficulty in believing that there is in brutes a mind similar to our own; but having made the discovery, after thinking well upon it, that two different principles of our movements are to be distinguished—the one entirely mechanical and corporeal, which depends entirely on the force of the animal spirits, and the configuration of the bodily parts, and which may be called corporeal soul, and the other incorporeal, that is to say, mind or soul, which you may define as a

substance which thinks—I have enquired with great care whether the motions of animals proceed from these two principles, or from one alone. Now having clearly perceived that they can proceed from one only, I have held it demonstrated that we are not able in any manner to prove that there is in the animals a soul which thinks. I am not at all disturbed in my opinion by those doublings and cunning tricks of dogs and foxes, nor by all those things which animals do,

either from fear, or to get something to eat, or just for sport. I engage to explain all that very easily, merely by the conformation of the parts of animals."

(Letter to Henry More.)

If the activities of animals can be thus explained on purely mechanical grounds, how can those of human beings be explained? Descartes was not prepared to apply his thesis to every department of men's actions, though he held that the more habitual and

reflex actions are mechanical. The mind was able to interfere to some extent with the motions of the body, and this leads us to another difficulty in the system—the union of the body and spirit in man. How are we to explain the union of two substances which are independent and each of which exists in its own right?

Descartes admits that even God cannot make these two substances one, and the union of the two must be taken as an empirical fact. The difficulty of explaining how

passion is fixed by the original constitution of the body? If the same being is determined by passion from without and reason from within, how can such a spiritual being maintain its character as self-determined? Surely it is a contradiction to assert that self-determination can exist in a being whom the external element of passion makes subservient to external impressions. One obvious solution is to crush the passions, but Descartes would not admit that the passions should be annihilated, because they

thought, and emotions or passions as states where pure thinking is affected by body, it follows that emotions must be kept down to secure clear thinking. To keep passions down we must think clearly, know fully, under the guidance of wonder, which, of all the passions, is the one that makes for knowledge and may be made to support mind as thinking. The soul, by its power of thinking, is able to suppress one passion indirectly by dwelling on another, the pineal gland diverting the course of the

“by which He not only knew from all eternity what is or can be, but also willed and pre-ordained it, is infinite. It thus happens that we possess sufficient intelligence to know clearly and distinctly that this power is in God, but not enough to comprehend how He leaves the free actions of men indeterminate”.

Although Descartes exercised a profound influence in his age, his immediate followers were

not satisfied with his lack of explanation of the possibility of the mutual influence between soul and body. If matter and mind are so diverse, how can there be any such thing as one influencing the other? The answer was provided by the theory known as Occasionalism, which is specially associated with the names of Geulincx and Malebranche. According to this view there is really no interaction between body and soul, but the appearance of it is due to the action of God. Thus, the stimulation of the optic

completely independent of anything else. Occasionalism was more logical when it appealed to God's power, but it was left to a greater than Descartes or the Occasionalists to point the way to a more intimate connection between God and the world.

LITERATURE

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*Discourse
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Principia*

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CHAPTER 6: SPINOZA'S DOCTRINE OF FREE WILL

AT the end of the preceding chapter it was pointed out that there were certain inconsistencies in the Cartesian system and that some of Descartes's followers attempted to rectify its defects. It is not surprising that Spinoza (1632-77), who started as a Cartesian, should end by constructing a system on the basis of one Substance which he identified with God or Nature, of which extension and thought are

“attributes” It may be admitted that it is difficult to give an adequate account of Spinoza’s philosophy in a short compass His system is not easy and is liable to serious misconstructions—so serious, indeed, that some philosophers since his days have applied to him the titles “this famous Atheist” and “a God-intoxicated man” Perhaps it should be added that if the title “religious” is restricted to the adherents of orthodox theology, Spinoza must be included among the non-religious The personal God of the

worthy one, and that the current conceptions are utterly irreligious.

In Spinoza's philosophy there is only one real thing—God, Substance, Nature, all of which mean the same thing, with an infinite number of attributes by which God realizes Himself. There are only two ways in which we are capable of perceiving these manifestations, under the attributes of Thought and Extension—that is, as bodies and minds. Of course God's nature is not limited to these two forms, because,

spiritualistic monism, makes God the only real Substance, Who manifests Himself by producing changes and motions in two parallel orders of mind and matter, these two being quite distinct, or under His two attributes of Thought and Extension. As might be expected, this doctrine would lead to a conception of God very different from that of Descartes, who divided the world into two Substances, distinct from each other, and a God separate from both. The Rationalism which arose from, this view removed

God still more from the world and almost isolated Him from His work. Spinoza attempted to show the close connection between God and the world, and to interpret all reality in terms of His ultimate perfection. The starting-point of Spinoza's thought is the perception of the unreality of finite things. After experiencing the futility of all the surroundings of social life, he sought for something of which the attainment would enable him to enjoy continuous, supreme, and unending happiness.

Recognizing the evils which ensue from the fact that happiness or unhappiness is made to depend on the quality of the objects which we love, these objects being perishable, where can true joy be found?

“But love toward a thing eternal and infinite fills the mind wholly with joy, and is itself unmixed with any sadness; wherefore it is greatly to be desired and sought for with all our strength.”

(Improvement of the Intellect,
Elwes’s

(First Part, “Of God”), Spinoza explains why men imagine themselves to be free. The following quotation from the beginning of the Appendix gives a summary of his conclusions in the thirty-six Propositions contained in the First Part and is very important in so far as it has a bearing on free will.—

“I have now explained the nature of God and its properties. I have shown that He necessarily exists; that He is one God; that

from the necessity alone of His own nature He is and acts; that He is, and in what way He is, the free cause of all things; that all things are in Him, and so depend upon Him that without Him they can neither be nor can be conceived, and, finally, that all things have been predetermined by Him, not indeed from freedom of will or from absolute good pleasure, but from His absolute nature or infinite power."

He then proceeds to

endowed with human liberty, has made these things for his service. Having heard nothing about the mind of such a ruler or rulers, he judges of it from his own, and so affirms that the gods direct everything for his advantage with the object of making him hold them in high honour.

“This is the reason why each man has devised for himself, out of his own brain, a different mode of worshipping God, so that God might love him above

others, and direct all nature to the service of his blind cupidity and insatiable avarice."

This prejudice has thus been turned into a superstition, and the attempt to show that nature does nothing in vain seems to end in showing that nature, the gods, and man are alike mad. Where has it led men? Not only have beneficial things been observed, but also much that is injurious, like storms, earthquakes, and diseases, and it was

affirmed that these occurred either because the gods were angry by reason of wrongs which man had inflicted on them, or because of sins committed in the method of worshipping them. In spite of the fact that the pious and the impious suffered indiscriminately, the prejudices still remained, and it was considered indisputable that the judgments of the gods pass man's comprehension.

“This opinion alone would have been sufficient to

keep the human race in darkness to all eternity if mathematics, which does not deal with ends, but with the essences and properties of forms, had not placed before us another rule of truth”

The conclusion is that nature has set no end before herself, and also that all final causes are only human fictions. It will be better at this stage to give some quotations from Spinoza to show that God does not act from freedom of will nor do human

beings.—

Ethic, Part 1, Prop. XXXII. “The will cannot be called a free cause, but can only be called necessary.”

Demonst.—“The will is only a certain mode of thought, like the intellect, and therefore (Prop 28) no volition can exist or be determined to action unless it be determined by another cause and this again by another, and so on *ad infinitum*. And if the will be supposed infinite, it must be

determined to existence and action by God, not in so far as He is substance absolutely infinite, but in so far as He possesses an attribute which expresses the infinite and eternal essence of thought (Prop. 23). In whatever way, therefore, the will be conceived, whether as finite or infinite, it requires a cause by which it may be determined to existence and action, and therefore (Def 7) it cannot be called a free cause, but only necessary or compelled
—Q E.D ”

Corol 1.—“Hence it follows, firstly, that God does not act from freedom of the will ”

Ethic, Part 2 —“Of the Nature and Origin of the Mind.” Prop. XLVIII —

“In the mind there is no absolute or free will, but the mind is determined to this or that volition by a cause, which is also determined by another cause, and this again by another, and so on *ad infinitum* ”

Demonst —“The mind is a certain and determinate mode of thought (Prop. 11,

Pt 1) and therefore (Corol 2, Prop 17, Pt 1) it cannot be the free cause of its own actions, or have an absolute faculty of willing or not willing, but must be determined by this or that volition (Prop 28, Pt 1) by a cause which is also determined by another cause, and this again by another, and 'So on *ad infinitum*'

It is important to notice what Spinoza means by the will. This is explained in the Scholium which follows the above proposition

“By the will I understand a faculty of affirming or denying, but not a desire; a faculty, I say, by which the mind affirms or denies that which is true or false, and not a desire by which the mind seeks a thing or turns away from it.”

Having previously shown that these faculties are universal notions which are not distinguishable from the individual notions from which they are formed, the question arises:

“Are the volitions themselves anything more than the ideas of things?”

In the next Proposition he shows that

“In the mind there is no volition or affirmation and negation excepting that which the idea, in so far as it is an idea, involves.”

As a Corollary from this Proposition it is demonstrated that the will and the intellect are one and the same thing, and Spinoza proceeds to answer

the objections which have been raised against this view. The first objection is that the will is more widely extended than the intellect, and hence differs from it. The second is that experience teaches us the possibility of suspending our judgment, so as not to assent to the things which we perceive. The third is that we do not require a greater power for affirming a thing to be true which is true than for affirming a thing to be true which is false—in other words, one affirmation does not seem to contain more reality

and the highest liberty. This knowledge also teaches us to bear every form of fortune with equal mind, knowing that all things follow from the eternal decree of God,

“according to that same necessity by which it follows from the essence of a triangle that its three angles are equal to two right angles.”

Then again, the doctrine contributes to social welfare, teaching us to hate no one and to be content

When a medical student offered him two thousand florins, he declined the gift because he thought it would divert him from his studies and occupations. The same medical student, Simon de Vries, wanted to make Spinoza his heir, but he declined the offer and persuaded him to leave the estate to his brother. This was done on condition that Spinoza should receive an annual sum sufficient for his support, and when De Vries died it was proposed that the annuity should be five hundred florins. Spinoza refused to accept

CHAPTER 7: LEIBNITZ AND TRUE FREEDOM

SOMETHING will now be said about the philosophy of Leibnitz (1646-1716), distinguished not only as a philosopher, but also as a mathematician and man of affairs. Descartes had separated things into two heterogeneous substances, connected by the omnipotence of God, and Spinoza had absorbed both into the one divine substance which he identified with God. This doctrine of Spinoza

the monads as percipient, self-acting beings, not from the arbitrary determination of God. There was no problem for Leibnitz in explaining how the prick in the finger produced a feeling of pain in the mind. The prick does not produce the pain, although it is as if it did. The two are parallel occurrences in two independent centres of spiritual reality.

There is an important distinction between Descartes's and Leibnitz's view of nature — a distinction which may be described as the difference

themselves to the central soul, *by the law of their nature*

“These principles have given me a way of explaining naturally the union, or rather the mutual agreement, of the soul and the organic body The soul follows its own laws, and the body likewise follows its own laws, and they agree with each other in virtue of the pre-established harmony between all substances, since they are all representative of one and

the same universe."

[Monadology, 78]

Thus is expressed in the figure of the clocks which keep exact time together. There are three ways in which this may happen. The first is through a direct mechanical connection—the common (Locke's) theory of mutual influence. The second way is to suppose that a workman regulates them each moment — the theory of the Occasionalists. The third way is to postulate such a skilful construction

of the clocks at first that they will always correspond exactly, and this is the way of pre-established harmony. This harmony was a contrivance of the divine knowledge

“which from the beginning formed each of these substances in so perfect, so regular and accurate a manner, that by merely following its own laws, which were given to it when it came into being, each substance is yet in harmony with the other, just as if there were a

mutual influence between them, or as if God were continually putting His hand upon them."

"The reality of the world is, then, the life of a multitude of immaterial things, which, though developing along lines independent of other monads, yet stand in a certain relation to the universal plan. This plan can be summed up in the one ultimate being—the “supreme monad”—God.

Does this pre-established harmony imply predestination and rigid

Although Leibnitz held that the will is an effort or tendency to that which one finds good, and the end determining the will is pleasure, the word “pleasure” as used by him has nothing in common with egoistic hedonism. Pleasure is the sense of an increase of perfection, and a will which is guided by reason will sacrifice transitory and pursue constant pleasures or happiness. True wisdom consists in this weighing of pleasures.

The philosophy of Leibnitz was systematized

by Christian Wolff in a highly rationalistic system and ruled the schools in Germany for nearly a century. The influence of Wolff on Kant will be dealt with in a subsequent chapter.

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Translations, Latta (*Monadology*, etc), Duncan (*Selections*), Montgomery (*Discourse on*

CHAPTER 8: DAVID HUME ON LIBERTY AND NECESSITY

THE history of philosophy is marked by a great controversy between two schools called respectively the “Empiricists” and the “Rationalists.”

The Empiricists maintained that all our knowledge was derived from experience, and this school is best represented by the British philosophers, Locke, Berkeley, and Hume. The Rationalists are represented by the

Continental philosophers of the seventeenth century, especially Descartes and Leibnitz, and this school maintained that, in addition to what we know by experience, there are certain innate ideas and innate principles, and that these are known independently of experience. As this subject is closely associated with questions relating to liberty and necessity, it will be better to deal briefly with certain views on causation which, since the days of Hume, have been given by the Empiricist school of

philosophy.

Hume (1711-76) held that causation is only a feeling of expectation due to custom, so that causation becomes entirely subjective

“When any natural object or event is presented, it is impossible for us, by any sagacity or penetration, to discover, or even conjecture, without experience, what event will result from it, or to carry our foresight beyond that object, which is immediately present to the memory and senses”

[Inquiry Concerning Human Understanding].

He defines a Cause as

“an object followed by another, and whose appearance always conveys the thought of that other.”

In his *Treatise of Human Understanding* he tells us

“What we call a *mind* is nothing but a heap or collection of different perceptions united

together by certain relations and supposed, though falsely, to be endowed with a perfect simplicity or identity."

From this he infers that there is no absurdity in separating any particular perception from the mind, nor in conjoining an object to the mind. There are, therefore, three essential elements in Hume's doctrine

- (1) That reality is only a succession of sensuous impressions;
- (2) That causation is the

idea of invariable
succession in our
sensations;

(3) That causation is derived from repetition in our experiences of individual sequences.

Many writers of the Empiricist school cannot accept Hume's doctrine of causation, especially when they deal with natural science. Hume's conception of reality is incompatible with the fundamental idea of the existence of a material world, and without a material world natural science is impossible. For this reason

follows

“By the will I mean nothing but the internal impression we feel and are conscious of, when we knowingly give rise to any new notion of our body, or new perception of our mind”

He points out that the actions of matter are necessary actions and whatever is on the same footing with matter must also be acknowledged to be necessary. Before inquiring whether this is so with the

operation of natural principles can be seen whether we consider mankind according to the differences of sex, ages, governments, conditions, or methods of education. There is a general course of nature in human actions, as well as in solar operations and in climatic conditions. Even racial traits and individual peculiarities can be known from the observation of uniformity in the actions which emanate from the characters. “This uniformity forms the very essence of necessity”

makes an essential part of causation, for which reason liberty is the same as chance, because liberty, by removing the necessity, removes also causes.

In Section ii he gives three reasons for the prevalence of the doctrine of liberty. The first reason is that men find it difficult to persuade themselves after they have performed any act that they were governed by necessity, the idea of necessity seeming to imply something in the nature of force, violence, and constraint, of which they are unaware. Few people

are capable of distinguishing between liberty of *spontaneity* and liberty of *indifference*—that is, between that which is opposed to violence and that which means a negation of necessity and causes. The first is commonly accepted as the meaning of the word, and, as it is only that form of liberty which we are concerned to preserve, our thoughts have generally turned towards it and have confused it with the other. The second reason is that, even of the liberty of indifference, there is a false

may imagine that they feel a liberty within themselves, a spectator can usually infer their actions from their motives and character. In cases where he is unable to do so he believes that he might if he were perfectly acquainted with all the circumstances of their situation, temper, etc ; and this is the very essence of necessity. The third reason is due to the influence of religion. A common but reprehensible procedure for refuting a hypothesis in philosophical debate is to show its danger to religion, and this has been a

for this reason he should not be punished for it. The hypothesis of liberty would lead to the conclusion that a man is as untainted after he has committed the most horrid crime as he was at birth, and his character is in no way concerned in his action “Tis only upon the principle of necessity, that a person acquires any merit or demerit from his actions, however the common opinion may incline to the contrary” The first and second volumes of the *Treatise*, containing Book I, “Of the Understanding,”

and Book II, Of the Passions," were published in 1739, but twenty-four years previously Anthony Collins had taken a foremost place as a defender of Necessitarianism. His *Inquiry Concerning Human Liberty* is on similar lines to Hume's method of reasoning, and marshals in a very clear and concise form all the chief arguments supporting the theory. Like Hume, Collins was a Freethinker, and in an earlier work, *A Discourse of Freethinking, occasioned by the Rise and*

Growth of a Sect called Freethinking, he impugned the trustworthiness of the text of Scripture. It need not occasion much surprise that the two Freethinkers should independently pursue a similar line of reasoning. One point in Collins's work is worth noticing—his assertion that it is self-evident that nothing that has a beginning can be without a cause. Dr Samuel Clarke, a celebrated philosopher and divine, who maintained that freedom of the will was essential to religion and morality, attacked Collins's

of him and other writers, he says

“I am glad of an opportunity to read such corrupt books, especially when written by men of considerable genius, that I may have an idea of the notions which prevail in our country.”

Edwards defines the will as that by which the “mind chooses anything,” and by “determining the will” he means “causing that the act of the will or choice should be thus and not otherwise”

In answer to the question, “What determines the will?”, he says “It is that motive which as it stands in the view of the mind is the strongest”. Liberty does not belong to the will itself, but to the person, and the liberty possessed by anyone is only liberty to act as he chooses.

Three suppositions are implied by any other form of liberty. The first is that there is a self-determining power in the will. The second is that previous to the act of volition the mind is in a state of equilibrium. The third — “Contingence” —

his rigorous logical
“proofs”.

It will not be necessary to say very much on the views of Bishop Butler (1692-1752), one of the greatest intellectual powers in the Church of England during the eighteenth century. His best-known book, *The Analogy of Religion, Natural and Revealed, to the Course and Constitution of Nature*, is not a philosophy of religion, but an apologetic work which had considerable influence in the Deistical controversy. He assumes that there is an

intelligent Author and Governor of Nature, and while his reasoning is an example of strength in analogical argument, it must be admitted that it is also an example of weakness. It is incapable of yielding anything more than a certain degree of probability, though Butler's caution and fairness of mind will be denied by very few. He argues that it is just as difficult to believe that Nature proceeded from and is ruled by God as it is to concede that Christianity has a divine origin. Most of the Deists admitted a

The hypothesis of a fate which determines certain points in the chain of events and does not determine the intermediate points also is absurd and opposed to the doctrine of necessity. He throws little or no light on the real problem, and he deals chiefly with the relation between Necessity and religion. In a practical sense he alleges that Atheistical men pretend to satisfy and encourage themselves in vice, and justify to others their disregard of religion, when they accept the doctrine of

CHAPTER 9: KANT'S DOCTRINE OF FREE WILL

THE great German thinker, Immanuel Kant (1724-1804), is best known through his system of philosophy, though he wrote numerous treatises on other subjects, including natural science and theology. In his *Allgemeine Natur-Geschichte* and *Theorie des Himmels*, published anonymously in 1755, he has important speculations on the nebular hypothesis, though in

certain respects he was anticipated here by J. Wright of Durham. Among his other works reference may be made to those dealing with retardation in the rotation of the earth, owing to the action of the moon in raising tides, the causes of earthquakes, theory of winds, volcanoes in the moon, physical geography, and with other subjects. Some of his writings on theology involved him in difficulties with the Government. This is not surprising when it is remembered that the tendency of his philosophy

was towards a moral Rationalism which could not be reconciled with the teachings of the Lutheran Church. After the first part of his book, *On Religion within the Limits of Reason Alone*, had appeared in the *Berlin Journal*, the publication of the remainder was forbidden. The work was published later in full in Konigsberg—an act which severely restricted Kant's future activities in lecturing and writing, though the death in 1797 of the King, Frederick William II, exonerated him from the

promise which had been exacted from him, not to write or lecture on religious subjects. In Kant's earlier writings it is possible to trace the various stages through which he passed from the notions of philosophy prior to his days to those new methods which characterize his critical philosophy. Reference has been made in the previous chapter to Wolff's systematization of Leibnitz's philosophy, but Kant was not satisfied with certain parts of the Wolffian system. Thus, he held that the

Leibnitz-Wolffian philosophy had assigned an erroneous point of view to the investigations into the nature and origin of our cognitions. This system regarded the distinction between the sensuous and the intellectual as logical, but Kant held that it was transcendental. It must be admitted that it is extremely difficult to give a short statement of Kant's philosophy without incurring the risk of conveying an utterly erroneous conception. He has been badly misunderstood and

sometimes quoted in support of views to which his philosophical system gave no sanction. As one instance of this reference may be made to Ernst Haeckel, who cites Kant's views on free will in *The Riddle of the Universe*, Chapter VI, "The Nature of the Soul," but obviously Haeckel misunderstood some of Kant's doctrine. This will be dealt with later when Haeckel's views are considered (see Chapter XI). In the present chapter a brief account will be given of Kant's system, especially that part of it which is

what is true or otherwise, it should carry out an inquiry into our intellectual faculties to see how far they are capable of apprehending the real nature of things. He gave the title “critical” philosophy to his system, and to each of his three

[These are Critique of Pure Reason, Critique of Practical Reason, Critique of Judgment]

chief works the title *Critique* was prefixed— the criticism of some intellectual faculty.

synthetic. A synthetic judgment adds to our conceptions of the subject a predicate not contained in it, and which no analysis could ever have discovered therein. On the other hand, an analytical judgment adds in the predicate nothing to the conception of the subject. It merely analyses it into its constituent conceptions, which were thought already in the subject, though in a confused manner. As an example, take the proposition “All bodies are extended”. This is an analytical judgment

because it is unnecessary to go beyond the conception of body to discover that extension is connected with it. It is only necessary to analyse the conception or become aware of the various properties which I think in that conception, to discover “extended” in it. On the other hand, when I say, “All bodies are heavy,” the predicate is something entirely different from that which I think in the mere conception of a body. The addition of such a predicate therefore produces a synthetic judgment.

Judgments of experience

are always synthetical; it would obviously be absurd to ground an analytical judgment on experience, because in forming such a judgment it is not necessary to go outside the sphere of my conceptions. Mathematical judgments are always synthetical—a fact which seems to have escaped previous analysts of the human mind—and proper mathematical propositions are always judgments *a priori*, and not empirical. This is because they carry along with them the conception of necessity, and this cannot be given by

was impossible.

“According to his conclusions, then, all that we term metaphysical science is a mere delusion, arising from the fancied insight of reason into that which is in truth borrowed from experience, and to which habit has given the appearance of necessity. Against this assertion, destructive to all pure philosophy, he would have been guarded, had he had our problem before his eyes in its universality. For

he would then have perceived that, according to his own argument, there likewise could not be any pure mathematical science, which assuredly cannot exist without synthetical propositions *a priori* — an absurdity from which his good understanding must have saved him."

[Critique of Pure Reason (translated by J M. D Meiklejohn), pp 12-13.]

Kant's definition of *a priori* knowledge must be

independent of experience, and even of all impressions of sense.

“Knowledge of this kind is called *a priori*, in contradistinction to empirical knowledge, which has its source *a posteriori*—that is, in experience. But the expression ‘*a priori*’ is not as yet definite enough adequately to indicate the whole meaning of the question above stated. For, in speaking of knowledge which has its source in experience, we

are wont to say, that this or that may be known *a priori*, because we do not derive this knowledge immediately from experience, but from a general rule, which, however, we have itself borrowed from experience. Thus, if a man undermined his house, we say, ‘he might know *a priori* that it would have fallen’; that is, he needed not to have waited for the experience that it did actually fall. But still, *a priori*, he could not have known even this much.

For, that bodies are heavy, and, consequently, that they fall when their supports are taken away, must have been known to him previously, by means of experience.

“By the term ‘knowledge *a priori*,’ therefore, we shall in the sequel understand, not such as is independent of this or that kind of experience, but such as is absolutely so of *all* experience. Opposed to this is empirical knowledge, or that which is possible only *a posteriori*, that is,

through experience. Knowledge *a priori* is either pure or impure. Pure knowledge *a priori* is that in which no empirical element is mixed up. For example, the proposition, ‘Every change has a cause,’ is a proposition *a priori*, but impure, because change is a conception which can only be derived from experience”

What criterion exists by which we shall distinguish a pure from an empirical cognition? If we have a proposition containing the

idea of necessity in its very conception, it is judgment *a priori*, and, in addition, if it is not derived from any other proposition, unless from one equally involving the idea of necessity, it is absolutely *a priori*. Also, if a judgment carries with it strict and absolute universality, it is not derived from experience, but is valid absolutely *a priori*. It has already been pointed out that the human intellect is in possession of certain judgments which are pure *a priori*, as in the case of

mathematics. Indeed, it is unnecessary to search for examples of principles existing *a priori* in cognition, because such principles are the indispensable basis of the possibility of experience itself, for which reason they prove their existence *a priori*. If all the rules on which experience depends were merely empirical, and so fortuitous, from whence could our experience acquire certainty? It may be accepted, therefore, that we possess and

exercise a faculty of pure *a priori* cognition, and that the tests for such cognition are universality and necessity.

We can now return to the question “How are necessary judgments possible?” As has been already shown, there are two elements in our experience—the sense material to which Hume had reduced all the conscious life, and, in addition, certain relating activities of the mind “The effect of an object upon the faculty of

representation, so far as we are affected by the said object, is sensation. That sort of intuition which relates to an object by means of sensation, is called an empirical intuition.

The undetermined object of an empirical intuition is called *phenomenon*. That which in the phenomenon corresponds to the sensation, I term its *matter*, but that which affects that the content of the phenomenon can be arranged under certain relations, I call its *form*.

But that in which our sensations are merely arranged, and by which they are susceptible of assuming a certain form, cannot be itself sensation. It is then, the matter of all phenomena that is given to us *a posteriori*; the form must lie ready *a priori* for them in the mind and consequently can be regarded separately from all sensation”

[*Critique of Pure Reason*,
“*Transcendental Aesthetic Introductory*”]

the same time an effect of nature and an effect of freedom ? It is important to bear in mind that no phenomenal cause can absolutely and of itself begin a series, a *primal* action—in other words, an action which forms an absolute beginning—is beyond the causal power of phenomena.

“Now, is it absolutely necessary that, granting that all effects are phenomena, the causality of the cause of these effects must also be a

phenomenon, and belong to the empirical world? Is it not rather possible that, although every effect in the phenomenal world must be connected with an empirical cause, according to the universal law of nature, *this empirical causality may be itself the effect of a non-empirical and intelligible causality—its connection with natural causes remaining nevertheless intact?* Such a causality would be considered, in reference to phenomena, as the

primal action of a cause, which is in so far, therefore, not phenomenal, but, by reason of this faculty or power, intelligible; although it must, at the same time, as a link in the chain of nature, be regarded as belonging to the sensuous world”

[Critique of Pure Reason, Book 2, Chap. 3, pp 336-7]

(Attention is drawn specially to the words in italics, not in the text, which are relevant for the

Practical Reason, which is concerned with the human will or “practical reason”. It is practical reason in so far as, being characteristically human, not merely instinctive as with the animals, it always wills to do something with an end in view. A distinguishing mark of a morally good action is that it is freed from every trace of personal interest. The whole essence of a moral life consists in obedience to a law—the Categorical Imperative—a law which commands, hypothetically, not but

unconditionally. This law is stated in his *Metaphysics of Morals*, Section 2—

“Act only on that maxim (or principle) which thou canst at the same time will to become a universal law.”

As an illustration of this universal law Kant takes the case of breaking promises. It is wrong to break a promise, because such an action could not become a universal principle. If it did, promises would cease to be made,

and in these circumstances they could not be broken. Hence, as it would be impossible for everyone to break a promise, it must be wrong for anyone. In fact, the essence of wrongdoing consists in making an exception.

The fundamental principle of moral conduct is, therefore So act that you can also will that your action should become a universal law Now such a moral law demands the actuality of freedom and is utterly meaningless unless I can do what I ought to do. As part of the phenomenal

“The explanation of the possibility of categorical imperatives, then, is that the idea of freedom makes me a member of the intelligible world. Were I a member of no other world, all my actions *would* as a matter of fact always conform to the autonomy of the will. But as I perceive myself to be also a member of the world of sense, I can say only that my actions ought to conform to the autonomy of the will”

[Metaphysic of Morality (Watson's

As is well known, Kant objected to Aristotle's scheme of categories on the ground that it was not confined to forms of the pure understanding, but confused pure and empirical notions, and also omitted some original elements. Kant's categories were intended to be an enumeration of the *a priori* forms of thought and were derived from the forms of logical judgment, but his philosophy broke down because there was a lack of a satisfactory method of discovering the categories. Those who are sufficiently

interested to pursue this subject will find Caird's *Critical Philosophy of Kant*, especially Book 1, Chapter 3, very helpful.

Dealing with a more restricted portion of his philosophy— freedom of the human will and the Categorical Imperative— critics have pointed out that the latter is merely a formal principle which is unable to give even a negative guidance. In addition, such a rigorous doctrine can scarcely regard as virtuous conduct which rests on feeling—and it must be admitted that a

considerable amount of commendable conduct springs from feeling rather than from the application of reason. The rigour of the doctrine is also shown in its failure to admit exceptions. There are numerous actions in life which are right because they are exceptions, such as heroic self-sacrifice, many instances of which would not be justifiable if everyone performed them. Here we are approaching the realm of ethics, and cannot pursue this particular side of the subject farther.

beauty to the objects as they exist for the scientific understanding. Indeed, this can often explain the beauty on mechanical principles alone. The other phenomena which we are unable to explain without an end in view are organic beings.

Mechanical explanation can go a certain length, but finally something remains—adaptation of parts to the ends of the whole—which is impossible to explain on mechanical principles. In this case also we are only justified in saying that the nature of these objects

cannot be explained unless the supposition of design is introduced. We must not assert that the phenomena could not have come into existence in some other way.

The final conception of the Kantian philosophy can be described as that of an ethical teleology, and Kant has summarized it in a very fine passage towards the end of the *Critique of Pure Reason*:

“But this systematic unity of ends in this world of intelligences—which, as

mere nature, is only a world of sense, but as a system of freedom of volition, may be termed an intelligible, that is, moral world (*regnum gratia*)—leads inevitably also to the teleological unity of all things which constitute this great whole, according to universal natural laws,—just as the unity of the former is according to universal and necessary moral laws,—and unites the practical with the speculative reason. The world must be

represented as having originated from an idea, if it is to harmonize with that use of reason without which we cannot even consider ourselves as worthy of reason—namely, the moral use, which rests entirely on the idea of the supreme good Hence the investigation of nature receives a teleological direction, and becomes, in its widest extension, physico-theology But this, taking its rise in moral order as a unity founded on the essence of

freedom, and not accidentally instituted by external command, establishes the teleological view of nature on grounds which must be inseparably connected with the internal possibility of things. This gives rise to a *transcendental theology*, which takes the ideal of the highest ontological perfection as a principle of systematic unity; and this principle connects all things according to universal and necessary natural laws,

because all things have their origin in the absolute necessity of the one only Primal Being.”

CHAPTER 10: THE VIEWS OF JOHN STUART MILL

THE reader must not expect that this small work will deal with every philosopher, theologian, or scientist who has entered the arena in the controversy between Necessitarians and Libertarians. Reference to a few of the outstanding advocates for each system is all that can be attempted, and in the present chapter something will be said about the views of John Stuart Mill (1806-73).

Before examining his doctrine on the freedom of the will, it will be necessary to say something about his views on causation. He adopted the fundamental empiricist position that nothing is given as a basis of knowledge but separate and particular sensations, and that originally these were mere subjective states of feeling. The causes with which he is concerned are not *efficient* but *physical* causes. "They are causes in that sense alone in which one physical fact is said to be the cause of another." He does not consider that

he is called upon to give an opinion on the efficient causes of phenomena or to say if such causes exist

“The Law of Causation, the recognition of which is the main pillar of inductive science, is but the familiar truth that invariability of succession is found by observation to obtain between every fact in nature and some other fact which has preceded it, independently of all considerations respecting the ultimate mode of production of phenomena,

and of every other question regarding the nature of ‘things in themselves’”

[*A System of Logic*, III, v, § 2].

Mill does not hold that invariable sequence necessarily exists between a consequent and a *single* antecedent. Indeed, the sequence generally subsists between a consequent and the sum of several antecedents, and the concurrence of all of them is necessary to produce the consequent.

Philosophically speaking, a cause is the sum total of all the conditions, positive and negative, taken together. The negative conditions may be summed up under the head of “absence of preventing or counteracting causes.” Mill adds that the sequence, in addition to being invariable, must also be unconditional, by which he means what writers imply when they say that “the notion of a cause involves the idea of necessity.” This addition is important because, without it, we might say that day was the

with it, while the action of matter on matter seems to require something else to explain it? Mill holds that those who argue in this way rest their case on an appeal to the inherent laws of our ^{conceptive} faculty, mistaking for the laws of that faculty its acquired habits, “grounded on the spontaneous tendencies of its uncultured state” The mind has a natural tendency to attempt to facilitate its conception of unfamiliar acts by assimilating them to others which are familiar. Now our voluntary acts are the

Essays on the Active Powers (Essay IV, Chapter 3) to support his thesis, and the last portion of this is reproduced —

“As philosophy advances, life and activity in natural objects retires, and leaves them dead and inactive. Instead of moving voluntarily, we find them to be moved necessarily, instead of acting, we find them to be acted upon; and Nature appears as one great machine, where one wheel is turned by another, that by a third,

and how far this necessary succession may reach, the philosopher does not know.”

We are now in a position to consider Mill’s views on the question of the law of causality in its application to human actions. His definition of philosophical necessity is given in his work previously referred to and is as follows.—

“That, given the motives which are present to an individual’s mind, and given likewise the

character and disposition of the individual, the manner in which he will act might be unerringly inferred, that if we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event. This proposition I take to be a mere interpretation of universal experience, a statement in words of what everyone is internally convinced of. No one who believed that he knew

thoroughly the circumstances of any case, and the characters of the different persons concerned, would hesitate to foretell how all of them would act. . . . The religious metaphysicians who have asserted the freedom of the will have always maintained it to be consistent with divine foreknowledge of our actions; and if with divine, then with any other foreknowledge. We may be free, and yet another may have reason to be perfectly certain what use

we shall make of our freedom. It is not, therefore, the doctrine that our volitions and actions are invariable consequents of our antecedent states of mind, that is either contradicted by our consciousness or felt to be degrading”

[A System of Logic, VI, l, § 2]

Mill points out that mere constancy of succession does not appear to many people to be a sufficiently strong bond of union for so peculiar a relation as that of

“The causes, therefore, on which action depends are never uncontrollable, and any given effect is only necessary provided that the causes tending to produce it are not controlled.”

It is important to notice the difference between the doctrine of necessity and fatalism. The true Necessitarian doctrine leaches that whatever is about to happen *will be the infallible result of the causes which produce it*, but a Fatalist believes that,

end, and the action itself becomes an object of desire. It may be remarked that Mill was an exponent of the doctrine of Psychological Hedonism—the theory that the ultimate object of desire is pleasure. In his *Utilitarianism* he says. “Human nature is so constituted as to desire nothing which is not either a part of happiness or a means of happiness” (p. 58) A discussion of ethical systems is outside our scope, and we offer no criticism of Mill’s utilitarian doctrine. Dr. Sidgwick, in his *Methods of*

CHAPTER 11: PROF ERNST HAECKEL AND THE FREEDOM OF THE WILL

HAECKEL does not require any introduction to the reader. His writings are well known, and have been produced in a cheap form which has made them accessible to a very wide circle of readers. He must be allowed the credit of popularizing Darwinism with the German public, in spite of a certain amount of opposition, but we can scarcely give him credit for the humility of mind which

suggested that his writings should have been confined to the realm of Biology. When he has made incursions into other departments he has sometimes betrayed an arrogant spirit and a lack of good taste, and some of his critics have been equally unfortunate in their examination of his views. While it is difficult for many people to exercise moderation in attacking an opponent, especially if their opponent has been guilty of scoffing at certain tenets which are very sacred to them, it is doubtful if much

good is done to the cause of knowledge and progress by such methods. If the present writer were called upon to criticize Haeckel's doctrine *in extenso*, he would be obliged to admit a considerable amount that was valid in many of his views (some of which might have been expressed with more courtesy), and also to admit that much of his teaching is quite untenable. The present chapter is restricted to an extremely limited part of his work—his views on the question of the freedom of the human will. These arise

enumerated. The last of these is the question of the freedom of the will, and of this Haeckel says "The seventh and last, the freedom of the will, is not an object for critical, scientific inquiry at all, for it is a pure dogma, based on an illusion, and it has no real existence"

B. In the same work, Chapter VI, "The Nature of the Soul," he says "The dogma of" free will, another essential element of the dualistic psychology, is similarly irreconcilable with the universal law of

substance”

C. In the same chapter we read “The most interesting example of such an entire change of objective and subjective psychological opinions is found in the case of the most influential leader of German philosophy, Immanuel Kant. The young, severely *critical* Kant came to the conclusion that the three great buttresses of mysticism—‘God, freedom, and immortality’—were untenable in the light of ‘pure reason’; the older, *dogmatic* Kant, found that

these three great hallucinations were postulates of ‘practical reason,’ and were, as such, indispensable”

D. In Chapter VII, “Psychic Gradations,” he returns to the subject of free will and says “The importance of the question is also seen in the fact that Kant put it in the same category with the questions of the immortality of the soul and belief in God He called these three great questions the indispensable ‘postulates of practical reason,’ though he had

concludes the chapter with the following words.—

E. “The great struggle between the determinist and the indeterminist, between the opponent and the sustainer of the freedom of the will, has ended to-day, after more than 2,000 years, completely in favour of the determinist. The human will has no more freedom than that of the higher animals, from which it differs only in degree, not in kind. In the last century the dogma of liberty was fought with general

philosophic and cosmological arguments. The nineteenth century has given us very different weapons for its definitive destruction—the powerful weapons which we find in the arsenal of comparative physiology and evolution. We know now that each act of the will is as fatally determined by the organization of the individual as dependent on the momentary condition of his environment as every other psychic activity. The character of the inclination was determined long ago by

conventional distinction between nature and spirit. There is spirit everywhere in nature, and we know of no spirit outside of nature. Hence, also, the common antithesis of natural science and mental or moral science is untenable. Every science, as such, is both natural and mental. That is a firm principle of Monism, which, on its religious side, we may also denominate Pantheism. Man is not above, but in nature".

We shall examine each of these headings in the next few pages.

images of objects which are above the ground being formed. A subject like the freedom of the will, to which philosophers have devoted so much serious thought for thousands of years, cannot be so lightly brushed aside.

B. It is essential that we should have very clear ideas on this “Law of Substance,” and an explanation of it appears in (1), Chapter XII. It should be noticed that this very important law includes two supreme laws of different origin and age. The first of

when Haeckel wrote these words. In his time physicists were prepared, on the whole, to accept matter and energy as fundamental factors in the inorganic world, and the conservation of matter as well as the conservation of energy were accepted as important generalizations. It is scarcely necessary to say that a revolution has taken place since then. The subatomic energy which was first observed leaking out very slowly from the atoms of radioactive bodies can, in certain circumstances, surpass by a

factor of millions the energy which is produced in the ordinary chemical reactions. The study of such energy and of the conditions which are necessary for its liberation has allowed the physicist to explain the radiation of our sun and other stars. The sun is losing weight at the rate of 250 million tons a minute, and this “annihilation of matter” provides the necessary energy emitted by the sun in the form of light and heat, a minute fraction of which falls upon our earth. Without this all life, so far

as we know, would cease to exist. Assuming that matter is being annihilated, or, more correctly, transformed into radiation, the law of the conservation of matter disappears and the conservation of mass and of energy becomes the same thing. In the words of Sir James Jeans

“The two fundamental cornerstones of nineteenth-century physics, the conservation of matter and the conservation of energy, are both abolished, or

rather are replaced by the conservation of a single entity which may be matter and energy in turn. Matter and energy cease to be indestructible and become interchangeable. . . ”

[The Universe Around Us, p. 186]

Haeckel seems to have anticipated the modern physicist in certain respects. In the chapter under discussion he says:

“The conviction that these two great cosmic

theorems, the chemical law of the persistence of matter and the physical law of the persistence of force, are fundamentally one, is of the utmost importance in our monistic system."

Reverting to B, in which, as we saw, the dogma of free will is irreconcilable with the universal law of substance, according to Haeckel, recent developments in physical science do not contradict his law of substance. Indeed the opposite is the case, for,

material has been differentiated out of psychoplasm, and, as he tells us, his conception in this sense is materialistic. No one will object to a materialistic view so long as consistency is observed, but it is difficult to reconcile his views which have been given above with those expressed in another part of Chapter XII where he lays down three theses as indispensable for a truly monistic view of substance. The first only is quoted, as relevant for our present purpose: "The two fundamental forms of

substance, ponderable matter and ether, are not dead, and only moved by extrinsic force, but *they are endowed with sensation and will* (though, naturally, of the lowest grade); they experience an inclination for condensation, a dislike of strain; they strive after the one and struggle against the other.” (I have italicized some words in the quotation which are important) The leap from matter to mind has been accomplished without the slightest attempt at explanation, and it is difficult to see how Haeckel

another equally logical tram to an entirely different conclusion. In the one case we are led to causality through freedom; in the other case the only causality is that of natural law. Hence Kant required that God, freedom, and immortality should be made postulates of practical reason. We have already shown why he maintained that there were sufficient grounds for holding them true.

D. It is unnecessary to deal with this, as it is merely a repetition of C. In

Haeckel deduces the existence of this harmonious unity from the general principle with which he set out—the Law of Substance. In the work referred to experimental evidence dealing with the reactions of unicellular organisms and higher forms of life has been cited. On the whole it would seem that the weight of evidence is in favour of automatism in the lower organisms—but in higher forms of life the results are often of a contradictory nature. Further reference will be made to some of the

CHAPTER 12: THE PROBLEM IN THE LIGHT OF RECENT DEVELOPMENTS IN PHYSICS

IN a previous chapter [*Chapter 2*] we saw that Democritus gave a materialistic view of the universe which held a primary place in philosophical thought. Atoms were supposed to be the ultimate material of all things, spirit included, and to have existed from all eternity. At the end of the last century it was shown

of Edinburgh during the previous year, was in some respects epoch-making. As he pointed out in his chapter on “Causation,” physics came down heavily on the side of predestination in the old conflict between free will and predestination. Its moral sympathy had been with the view that the future is foretold in the configurations of the past:—

**Yea, the first Morning of
Creation wrote
What the last Dawn of**

Reckoning shall read
*[Quoted from Omar
Khayyam]*

Eddington admits in this chapter that it seemed incredible to think that predetermination should include life and consciousness, but he was unable to form a satisfactory conception of any causal sequence which should be other than deterministic. However, he tells us that his attitude to the question had altered, and, in consequence of the advent of the quantum

theory,

“physics is no longer pledged to a scheme of deterministic law”

In rewriting this chapter a year after the lecture was delivered he adopts an attitude more hostile to determinism, and this arose from accepting the Principle of Indeterminacy. This principle, formulated in 1927 by Heisenberg, sometimes called the Principle of Uncertainty, is as follows:

“A particle may have position or it may have velocity but it cannot in any exact sense have both.”

Sir James Jeans, who is an expert at making extremely abstruse subjects clear to the ordinary man, has given an excellent exposition of this principle. To understand his explanation a word must first of all be said about the orbits of electrons and also about Planck’s Constant. Electrons are conceived as moving in very definite

orbits around the central nucleus, and also as incapable of occupying intermediate positions between one orbit and another. When an electron's excited by heat or electric action or other means it jumps into the next orbit away from the nucleus, and absorbs energy in doing so. Conversely, when it falls back into its original orbit it emits the same quantity of energy. In these jumps the quantity of energy absorbed or emitted is just sufficient to lift an electron from one orbit to another.

Radiation of each particular wave-length has a certain amount of energy associated with it, and this amount depends on the wave-length, and on nothing else. This energy is called the “quantum,” which is supposed to be proportional to the number of vibrations of the radiation per second. As the number of vibrations a second—the frequency—is inversely proportional to the wave-length of the radiation, the red light, which has long wave-length, has feeble quanta compared with the

violet light. If the frequency of the radiation is denoted by v , the quantum of energy is $h\nu$, where h is a universal constant of nature—Planck's constant. It is obvious that when an atom emits energy which takes the form of a periodic oscillation or wave, if the amount of energy is divided by the number of oscillations per second, the result will be Planck's constant, and this is known to be 6.55×10^{-27} erg seconds. The quanta of radiation which is emitted or absorbed by an atom are now generally known by

“It is like trying to time a hundred yards race with a grandfather clock that only ticks seconds.”

[7, P232 The numbers refer to the works in the list at the end of the chapter.]

Physicists are therefore confronted with the dilemma that one kind of photons, carrying a large amount of energy, give inexact information about the present condition of the universe, while another kind, carrying less energy, are too slow in telling their

“The future is a combination of the causal influences of the past together with unpredictable elements—unpredictable not merely because it is impracticable to obtain the data of prediction, but because no data connected causally with our experience exist.

... Those who maintain a deterministic theory of mental activity must do so as the outcome of their study of the mind itself and not with the idea that they are thereby making it

more conformable with our experimental knowledge of the laws of inorganic nature".

Eddington is convinced that modern physics has become more definitely hostile to the postulate that the future is predetermined, with the discovery of the Principle of Indeterminacy. He gives a simple case where we think we can predict the future. Let us assume that we have a particle with known position and velocity at the present instant. If we

assume that nothing interferes with it, we can predict its position at any subsequent instant, though, strictly speaking, the non-interference would be a subject for another prediction. This is not considered, however, as it would introduce complications into the problem. The Principle of Indeterminacy forbids this simple prediction, because it states that we cannot know accurately both the velocity and the position of a particle at the present instant. It is true that there is no limit to the accuracy

show that the view that a particle necessarily has a definite velocity now amounts to disguising a piece of the unknown future as an unknowable element of the present

“Classical physics foists a deterministic scheme on us by a trick, it smuggles the unknown future into the present, trusting that we shall not press an inquiry as to whether it has become any more knowable that way”.

This same principle

extends to every kind of phenomenon that we attempt to predict, but generally the need for accuracy is buried under a mass of averages.

If there is no causality in the external world, many might consider that this implies an end to all true science, but Eddington does not hold this view. The point which we shall now consider is the effect of this doctrine upon the human will, and on this Eddington says:

“A complete determinism

of the material universe cannot be divorced from determinism of the mind. . . . Conversely, if we wish to emancipate mind, we must to some extent emancipate the material world also".

Take as an example the prediction of the weather a year ahead. To make this prediction we should require to know not only a lot about present conditions on the earth; it would be necessary to examine the state of the sun to make predictions on

inorganic phenomena unless the determinism governs the mind itself, and conversely. Are there any obstacles to the emancipation of mind? This is the problem with which he deals next.

He does not agree with the Materialist view that the motions of the body and limbs, which appear to be controlled by our volitions, are only reflex actions controlled by the material processes in the brain. The act of will, on the Materialist view, is a mere inessential side phenomenon which occurs

simultaneously with the physical phenomena. The Materialist also assumes that the result of applying physical laws to the brain is fully determinate. Eddington adds:

“It is meaningless to say that the behaviour of a conscious brain is precisely the same as that of a mechanical brain if the behaviour of a mechanical brain is left undetermined. If the laws of physics are not strictly causal the most that can be said is that the

behaviour of the conscious brain is one of the possible behaviours of a mechanical brain. Precisely so; and the decision between the possible behaviours is what we call volition”

One more passage will be quoted, and readers will be able to judge whether some of the criticisms of the views expressed are justifiable. Eddington continues

“A mental decision to turn right or left starts one of

two alternative sets of impulses along the nerves to the feet. At some brain centre the course of behaviour of certain atoms or elements of the physical world is directly determined for them by the mental decision—or, one may say, the scientific description of that behaviour is the metrical aspect of the decision. It would be a possible though difficult hypothesis to assume that very few atoms (or possibly only one atom) have this direct contact with the conscious

decision, and that these few atoms serve as a switch to deflect the material world from one course to the other. But it is physically improbable that each atom has its duty in the brain so precisely allotted that the control of its behaviour would prevail over all possible irregularities of the other atoms. If I have at all rightly understood the processes of my own mind, there is no finicking with individual atoms ... It seems that we must attribute to the mind

power not only to decide the behaviour of atoms individually but to affect systematically large groups—in fact to tamper with the odds on atomic behaviour. This has always been one of the most dubious points in the theory of the interaction of mind and matter.”

Professor H. Levy, referring to the early part of this quotation, and expressing his disapproval of the views which Eddington has set forth, says that none of his

biological friends has heard of these facts. There is a remarkable resemblance between some of the views expressed in the above quotations and those of Descartes, to whom reference was made in a previous chapter. The “trigger action” of the unpredetermined behaviour of a few key atoms in our brain-cells, if established, would simplify the problem, as Eddington points out in a later work, which he expounds his views in greater detail and answers his critics. In our bodily mechanism there is

a large amount of trigger action, as when a minute physical change in a nerve releases the pent-up energy of a muscle. He conjectures that the physical effects of volition have their origin in structures containing many billions of atoms, and if such a unit behaved like an inorganic system of similar mass, there would be sufficient indeterminacy to allow appreciable freedom. Quoting Eddington's own words

“My own tentative view is that this ‘conscious unit’

does in fact differ from an inorganic system in having a much higher indeterminacy of behavior —simply because of the unitary nature of that which in reality it represents, namely the Ego”

Having accepted the view that the activities of consciousness do not violate the laws of physics, Eddington admits that the nature of responsibility brings us to a dilemma which he, in common with hundreds of others, is

unable to solve. Although we feel that we can change our nature to some extent—in other words, we can reform or deteriorate—are we certain that this reforming or deteriorating impulse is not also within our natures? If it is not in us, how can we be responsible for it? He is not prepared to accept the solution sometimes offered that responsibility is a self-contradictory illusion, and responsibility seems to him to be one of the fundamental facts of our nature. As a theory of matter must correspond to

be extended to the activities of the human mind. He writes:

“The principle of causality must be held to extend even to the highest achievements of the human soul. We must admit that the mind of each one of our greatest geniuses—Aristotle, Kant or Leonardo, Goethe or Beethoven, Dante or Shakespeare—even at the moment of its highest flights of thought or in the most profound inner workings of the soul, was

subject to the causal fiat and was the instrument in the hands of an almighty law which governs the world."

Einstein supports this view. He says:

"I am entirely in agreement with our friend Planck in regard to the stand which he has taken on this principle. He admits the impossibility of applying the causal principle to the inner processes of atomic physics under the present

state of affairs; but he has set himself definitely against the thesis that from this *Unbrauchbarkeit* or inapplicability we are to conclude that the process of causation does not exist in external reality. Planck has really not taken up any definite standpoint here. He has only, contradicted the emphatic assertions of some quantum theorists and I agree fully with him. And when you mention people who speak of such a thing as free will in nature it is difficult for me to find a suitable reply. . . .

Honestly I cannot understand what people mean when they talk about freedom of the human will.”

Those who follow out Planck's arguments may conclude that there are inconsistencies in his position. In Chapter 5 of the work referred to he says:

“The fact is, there is a point, one single point in the immeasurable world of mind and matter, where science, and therefore

every causal method of research, is inapplicable, not only on practicable grounds, but also on logical grounds, and will always remain inapplicable. This point is the individual ego. It is a small point in the universal realm of being; but in itself it is a whole world embracing our emotional life, our will, and our thought. This realm of the ego is at once the source of our deepest suffering and at the same time of our highest happiness. Over this realm

no outer power of fate can ever have sway, and we lay aside our own control and responsibility over ourselves only with the laying aside of life itself."

Other physicists have adopted an attitude of neutrality the subject, holding the view that the contribution of modern physics to the problem of free will is nothing. Among these is included Professor Herbert Dingle, an astrophysicist of distinction, whose conclusion, after a most

careful examination of the problem, is:

If we assume that the behaviour of atoms is not strictly determined, it is useless to argue that as the brain is composed of atoms, therefore the mind is not strictly determined, because consciousness is not derived from atoms.

Others again have agreed more or less with Eddington, and among these is Weyl, who explains how the limits to determinism, if there are

any, will be found bypassing along from the large- scale phenomena of astronomy and physics, which necessarily appear to be deterministic, to the small-scale phenomena. He says

“We firmly believe today that we have touched these limits in quantum mechanics. . . .

“At the same time ‘fate’ as expressed in the natural laws appears to be so weakened by our analysis that only through misunderstanding can be

it placed in opposition to free will ”

Sir James Jeans seems to favour a non-deterministic view, but he is sometimes non-committal in his opinions. He discusses the problem in different places and about nine years ago expressed his views as follows:

“Nevertheless, the most we can say is that crevices have begun to appear in what used to be considered the impregnable closed cycle

of physical science. Whether the volitions of the human mind can pass through these and affect the operations of nature must in the last resort depend on whether the two are sufficiently alike to interact—a keyhole is useless unless we have a key of the same nature as the lock. It may still be, as Descartes maintained, that mind is too dissimilar from matter ever to be able to influence it”

The idealism of Sir Arthur Eddington and also of Sir

Professor Millikan's reasons for his faith in the Christian religion and for his belief that Materialism is now obsolete (the latter based upon the recent discovery that the properties of the atoms are as mysterious as any that used to masquerade under the name of "mind"), and says

"It is odd to find the view that 'all is mysterious' is to be regarded as a sign of hope. The rejection of the 'billiard-ball view' of matter does not warrant

the leap to any form of Idealism. Surely a view that finds a place for Mind in the universe only after the principle of uncertainty has been discovered or after abstruse physical speculations have made of physics a science not 'understood of the people' is not a view that should commend itself to the earnest seeker after God, especially if that seeker be a Christian. At least, I should have thought not, were it not that Christian apologists have been eager to wait

upon the pronouncements of the physicists, so thankful to be assured that we put into Nature the laws we profess to discover and, finally, that the chairs we sit on are not solid."

Prof Stebbing offers some criticism on the views of Sir James Jeans, especially in his work *The Mysterious Universe*. I have always thought that critics took this work too seriously— perhaps more seriously than the author himself. Many have tried to

be facetious about his “mathematical God,” but it is unnecessary to regard this expression as anything beyond a “suggestive metaphor”. Prof. Stebbing objects, *inter alia*, to his failure to define some of his terms, such as “thought” and “thinking,” and adds

“Yet it is upon the concept of thought that the whole of his metaphysics depends. Had he been a philosopher either by training or by inclination he would surely have realized the necessity of

attempting to analyse a concept so fundamental for his argument."

Readers will probably agree with most of the criticism of his position which has been made in the work referred to, and it may be readily conceded that he has not afforded the common reader very much clear information regarding the philosophical implications of the new physics.

The question of the objective reality of atoms and electrons must be left

to the philosophers to discuss. It would very much exceed the allotted space for this work to deal with this side of the question, and the chapter will conclude with a quotation from Einstein in a work published a few years ago:

“Science is not just a collection of laws, a catalogue of unrelated facts. It is a creation of the human mind, with its, freely invented ideas and concepts. Physical theories try to form a picture of reality and to

establish its connection with the wide world of sense impressions. Thus the only justification for our mental structures is whether and in what way our theories form such a link”

LITERATURE.

The following list contains a number of the more important work? which deal with the subject of the present chapter. Reference is made to some of these in the text

1. A. S. Eddington, *The Nature of the Physical World*

2. New Pathways in Science

3. Science and the Unseen World.

4. The Philosophy of Physical Science.

5. J. Jeans, *The Mysterious Universe*.

6. The Universe Around Us.

7. *The New Background of Science*.

8. M Planck, *Where is Science Going?*

9. H Levy, *The Universe of Science*

10. H. Weyl. *The Open*

World.

11. A Einstein and Leopold Infeld, *The Evolution of Physics.*
12. H Dingle, *Science and Human Experience.*
13. *Through Science to Philosophy.*
14. E. W. Barnes, *Scientific Theory and Religion.*
15. Bertrand Russell, *Outline of Philosophy.*
16. *The Analysis of Matter.*
17. C. E. M. Joad, *Philosophical Aspects of Modern Science.*
18. *Guide to Philosophy*
19. L. Susan Stebbing, *Philosophy and the Physicists.*

20. C. D Broad,
Determinism,
Indeterminism and
Libertarianism.

21. M. Davidson, *Free Will or Determinism.*

A few of these deal only with atomic physics without considering the question of free will. In 2, Eddington replies to a number of critics (including those dealing with certain philosophical difficulties), Prof W. T. Stace and Dr. C E. M. Joad, as well as Bertrand Russell, whose criticism, however, seems to be based on some

misunderstandings.

Among the works which are definitely opposed to Eddington's views are 9, 12, 13, 15, 16, 17, 18, 19. In 21 will be found a summary of most of the objections to Eddington.

Criticism of Eddington and also his replies have appeared in different journals, *Nature*, *The Nineteenth Century*, *Contemporary Review*, and elsewhere. In the books listed above, practically all that the reader requires on the subject will be found.

CHAPTER 13: THE POINT OF VIEW OF THE BIOLOGIST

THE title of this chapter is slightly misleading, inasmuch as there is no consensus of opinion among biologists on the question of the freedom of the will or determinism. Different schools of thought exist, and probably will exist for some time because of the conflicting nature of experimental evidence. A brief outline of the situation is all that can be attempted in one

to a limit which it brings about.

“(2). The production of a new organ in an animal results from the supervention of a new want continuing to make itself felt, and a new movement which this want gives birth to and encourages.

“(3). The development of organs and their force of action are constantly in ratio to the employment of these organs.

“(4). All which has been acquired, laid down, or changed in the organization of individuals in the course of their life is

generally speaking, transmitted unless they were common to both sexes. In discussing this matter he says

“Everything which Nature has caused individuals to acquire or lose by the influence of the circumstances to which their race is long exposed, and consequently by the influence of the predominant employment of such organ, or its constant disuse, she preserves by generation to the new individuals

proceeding from them, provided that the changes are common to the two sexes, or to those which have produced these new individuals."

[*In Philosophie Zoologique*]

Lamarck, like Darwin, taught that the more complex forms of life have simpler ancestors, but he attached the chief importance in the *modus operandi* to the influence of new wants which had an indirect action in stimulating growth and use

Darwin believed that the chief factors in evolution were accidental variations which gave certain advantages to different forms of life in the struggle for existence. It is now accepted that these are insufficient to explain evolution, and other factors must be postulated. The advantage of small variations, such as Darwin thought were operative, is very problematic, and mutations or sudden jumps in the structure of organisms must now be recognized as effective in some cases. The question of

such an endowment is able to control its own growth. The recognition of teleological factors in evolution appears a simple matter to some, but there are many who are unable to see anything beyond blind chance in the organic world as in the inorganic.

It is remarkable that this question regarding the transmission of acquired traits or otherwise cannot be settled definitely, and that so much doubt still remains on this subject. Weismann denied that there was such a thing as transmission of acquired

white to dirty grey, but a small percentage—about 4 per cent under natural conditions—have no pigment in the skin, and these appear to be bright green in colour because the green blood of the pupa shows through.

From the eggs of butterflies which were living under normal conditions Durken reared (a) caterpillars in orange light, and as a result he obtained a higher percentage of green pupae. He selected the green pupae and utilized the eggs of the butterflies which

resulted from them as follows. He reared a number of these eggs in (b) orange light, and these eggs produced a higher percentage of green pupae than he had previously obtained. Other eggs were reared in (c) bright light and others in (d) darkness, and in each case there resulted a much higher percentage of green pupae than would be obtained by rearing the wild and unsorted caterpillars in bright light or in darkness. The experiment seems to have established the claim of the Lamarckians that the

green colour which the pupae acquired by the presence of orange light is inherited by a large percentage of the caterpillars.

Other experiments in more recent times appear equally conclusive. W. H. Thorpe describes his experiments with the larvae of *Nemeritis* and *Drosophila melanogaster* which were reared on certain media (*Proc. Roy. Soc.*, 127, 424-33; 1941). Adults of *D. melanogaster* arising from larvae reared on medium which contained essence of

choice of the adult.

It should be pointed out, however, that objections can be raised against the conclusions of experiments of this land. Take the case of Durken's caterpillars. As the caterpillars do not all respond to the orange light, it is certain that the wild caterpillars are not all genetically homogeneous, some possessing groups of genes in the chromosomes of their germ-cells which are responsive to the orange light, while others have no such genes or, if they have, they are recessive. Obviously from

group (a) Durken segregated the more responsive caterpillars and, as might be expected, the result of this selection would show itself in group (b) as a specially responsive group. The same responsiveness would also be shown in groups (c) and (d). Similar criticism can be made of all experiments with organisms which are not shown conclusively to be *genetically homogeneous at the beginning of the experiments.* Results obtained by experiments on a mixed stock, using an

possible to obtain a giant or dwarf race. Johannsen experimented with scarlet-runner beans which reproduce by self-fertilization. The beans which come from a pure line obtained by this self-fertilization differ in size, but the difference from the mean corresponds merely to the curve of probability and lies within well-defined limits. Johannsen used the descendants of a particular bean and found that no difference in size resulted whether he sowed the large or the small beans. The distribution of size was the

same whatever selection process was employed to obtain them. Jennings did similar work with the *paramecium*, the well-known

“slipper-animalcule” of our ponds. While specimens varied in length, it was impossible, *by any* process of selection, to produce a long or a short breed of this organism. Agar’s work with *simocephalus*, a water-flea which produces itself parthenogenetically, led to the same results, or perhaps proved the opposite. The developed

“Selection cannot cause a group (species) to transcend the extreme variations that it naturally shows. Rigorous selection can bring a population to a point where all of the individuals are nearer to the extreme type shown by the original population, but beyond this it cannot go.”

Morgan's own experiments on *drosophila* are worth recording, as they are an additional illustration of the danger of making false inferences. He

He pointed out that man, on the whole, was induced by society to behave better than he would do if left to his own devices, and on Lamarckian principles he should improve innately in each generation, but no evidence for such an improvement is apparent [*The Causes of Evolution*, p. 130]. These words are worth pondering; Haldane uses the expression “on the whole,” and we are forced to ask whether society does not often produce deterioration. In any case, recent events have corroborated his view—by

no means original—and signs of ethical progress and enhanced principles of humanity are sadly lacking. Leaving the question of the transmission of acquired traits (the evidence on the whole seems to be against the theory), we shall now look at the problem of the freedom of the will from another point of view. It is well known that the lower organisms display interesting reactions to various tropisms — in other words, response to a stimulus. An example of the influence of light on the regenerating polyps of

Eudendrum is given in the results of experiments carried out by Loeb and Ewald. The intensity of the light was changed by varying the distance of its source from the polyps, and the times required.

By 50 per cent, of these to bend towards the source were determined. It was found that there was a remarkable correlation between the results and the well-known

Bunsen-Roscoe law.
[Schwarzschild's law is a little more accurate].

This law states that the photochemical effect of

such methods are applicable to human actions is a problem which has not yet been settled. If, as seems probable from the experiments with dogs, the behaviour of these animals is not necessarily related to teleological ends, does the same thing apply to human beings? The behaviourist psychology, which has its experimental basis very largely in the work of Pavlov, does not deny the existence of mind, but denies its efficacy. Its object, as stated by a leading exponent, Dr. John B. Watson, is the

“ascertaining of such data and laws that, given the stimulus, psychology can predict what the response will be; or, on the other hand, given the response, it can specify the nature of the effective stimulus”

This short survey of the question of the reaction of organisms to tropisms, stimuli, etc., leads on to a consideration of the mechanical view of life. This will be dealt with in the remainder of this chapter.

A purely mechanical view of life is, as might be expected, associated with Materialism. Many definitions of this word have been given, but it will be sufficient to accept one of them for the present purpose, and that given by the late Prof. J S. Haldane will be used.

“Materialism may be defined as the belief that physico-chemical realism, or the assumption that the representation of our surrounding universe by the physical sciences in

their traditional form corresponds to reality, can be extended so as to cover, not only the phenomena of life, but also those of conscious behaviour”

[Materialism, in “Preface.”]

Haldane was convinced that many of the phenomena associated with life were inexplicable on mere mechanical principles. Thus, the tendency of an animal organism to maintain its internal and external

environment constant was one of those inexplicable phenomena on the materialistic hypothesis. He did not, however, accept the vitalistic hypothesis, and he simply accepted life as a fact for which an explanation was impossible.

“Life as simply life is the reality which must be assumed in biological interpretation; and the word ‘life’ is indispensable for denoting what we find.”
[*Ibid*, p. 50.]

opposed to the view of J. B. Haldane on the balancing of environment, it is argued that it is unnecessary to postulate an outside influence because well-known principles in physics and chemistry are able to afford at least a tentative explanation of this. Thus, Le Chatelier's principle in thermodynamics—

“when a factor determining the equilibrium of a system is altered, the system tends to change so as to oppose

and partially annul the alteration in the factor”

—may include, as a special case, the tendency of an organism to maintain a constant environment. Then the argument that we are abstracting from reality if we regard an animal as a physico-chemical system, ignoring the fact that it is a psycho-physical whole, is shown by Needham to be invalid. If such an argument were carried out consistently it would tend to encourage the method of the mystic and to deny that

there is any validity in the scientific method. Whatever may be said against the mechanistic hypotheses, at least they do provide theories which can be proved or disproved, and very little stimulus towards research is produced by some of the views which postulate an outside influence. The words of Bertrand Russell in this connection are worth pondering

“Is the human body a mere machine, governed wholly by the principles of

physics and chemistry? Wherever it is understood, it is found to be so, but there are still processes which are not completely understood; perhaps in them a vital principle will be found to be lurking? In this way, the champions of vitalism become the friends of ignorance. Let us not, they feel, know too much about the human body, lest we should discover to our dismay that we can understand it. Every fresh discovery makes this view less plausible, and restricts the

territory still open to the obscurantist”

[Scientific Outlook]

While readers may disagree with some parts of this quotation, it must be pointed out that vitalism has retreated from one position to another, and when the operations of vitalism are limited to entelechy—that is, to some non-mechanical agent which works in psycho-physical systems—its case is weakened. The word “entelechy” is derived from

the Greek *enteles*, “attained perfection,” and *echo*, “to have,” and means the complete actualization of a thing Leibnitz called his monads *entelechies* (borrowing the Aristotelian term) because they have a certain perfection. Many biochemists find it difficult to entertain any intelligible conception in the word, and Needham’s description is interesting as well as amusing. He describes it as follows.

“A directive force which is neither matter nor spirit,

which can act but at the same time cannot think, and which regulates chemical processes perfectly capable of themselves, regulating thoroughly seems inconceivable to the biochemist."

The subject of mechanism should be considered in connection with the remarkable results obtained by Loeb and others in artificial fertilization. The eggs of a certain Californian sea-urchin, which cannot be

fertilized in ordinary sea-water by the sperm of star-fish, can be fertilized if the water is a little more alkaline, or if a small amount of calcium is added to it. The larvae were not quite normal; they possessed only maternal traits, and a mere small percentage lived long enough to form skeletons. Similar results were obtained with other species, but perhaps the most remarkable experiments were those connected with artificial parthenogenesis. These were conducted with the

connection, though they may come as a shock to some.

“Science has put the old teleology to death. Its disembodied spirit, freed from vitalism and all material ties, immortal, alone, lives on, and from such a ghost science has nothing to fear.”

[Fitness of the Environment]

This opinion is field by others besides men of science, the philosopher too finds it difficult to

teleology, and here the moralist and theologian are confronted by most perplexing problems. One example will suffice to show how difficult it is to attribute any sense of values to Mind, assuming that it is active in the universe. This is merely one out of numerous instances.

It is well known that malaria is conveyed by the female gnat *anopheles*, which acts as a carrier of the parasite. Close behind her stabbing style there is a small tube like a hollow needle which leads from a

out the contents they split up into families of young, which in turn enter the red cells and repeat the process. Inside the red corpuscles they are safe from the attacks of the white corpuscles, which are ready to pounce upon any intruders and to devour them in ordinary circumstances. The white corpuscles never attack the red cells, and so the parasite is free to continue its onslaught in the home which it quickly ruins. The parasite's preparation for sexual reproduction and the method which Nature

are incapable of conjugation unless brought together, and the *anopheles* comes to their assistance. The gnat bites the sufferer, and the blood which she sucks contains the parasites which are immaturely developed sexually. It is remarkable that they are not digested by the gnat, but prepare for conjugation, one rounding itself into an egg and the other protruding a few lashing tails which ultimately break off and fertilize the ova. These then become pointed at one end and find their way towards

reason, recognition, or choice. It is possible that its whole phase is performed by some chemotatic principle, at least one hopes so, because if it acts in accordance with some Design running through the universe, many would feel disposed to say. "So much the worse for Design." Of course if we are prepared to concede that values are non-existent or that the *anopheles* or the *plasmodium* has equal value with human beings, we might admit Design, but what a Design." The following quotation from a

comparatively recent work is apposite in connection with this subject. Speaking of the competition between life and life the author says.

“An element deepening this conflict is that Nature has evolved kinds of life whose specific food consists of lives adjunct to developed mind. This obviously continues, heedless of mind, what prevails in the mindless competition between lives where one life batters on another. It suggests that Nature holds mind at a

discount; perhaps she is so fertile that she can afford to Developed mind as agent of predacity always offers the paradox that 'zest to live' develops as its corollary 'zest to kill'.

It demonstrates life condemned to live by spreading pain and death around it. Whatever meaning the evolution of life and mind may have, mind, so soon as it develops, is plunged into the thick of life as conflict. Where the predatory life and its quarry both possess developed mind

the struggle leaves a trail of suffering. The predatory life which so lives is a seed of suffering on the planet's side. Nature contains much which is hateful and much of pain. Much 'that spoils the singing of the nightingale.'"

[*Charles Sherrington, O.M, Man on his Nature, The Gifford Lectures, Edinburgh, 1937-8, p. 379.*]

The problem which still awaits solution is the origin of life and, while recent discoveries have narrowed

probability that the exact conditions for the development of life by certain chemical processes existed for many millions of years. Someday these conditions may be reproduced in the laboratory and the mystery that has baffled the human mind will be a mystery no longer. To quote again from Sherrington:

“Chemistry and physics account for so much that the cell does, and for so much to which years ago physical science could at

that time offer no clue, that it is justifiable to suppose that the still unexplained residue of the cell's behaviour will prove resolvable by chemistry and physics."

[Ibid., p. 135]

LITERATURE.

The literature on the subject of this chapter covers such a wide scope that reference can be made only to the more outstanding works. In the list below readers will find different points of view,

and attention is specially drawn to the research of Driesch and others on the cleavage cells of the sea-urchin. Driesch postulated an “entelechy” to explain certain peculiarities. See the present author’s comments on these results in *Free Will or Determinism*, Chapter VII.

A. Weismann, *The Germ Plasm Theory* E. W. MacBride, in *Zoology*, p 261

Evolution in the Light of Modern Knowledge.

Also in *The Great Design*,

J. C. Willis, *Age and Area*.
H. G. Wells, Julian Huxley,
G P. Wells, *The Science of
Life*.

J. A. Thomson and Patrick
Geddes, *Outlines of
General Biology*.

J. Graham Kerr, *Evolution*.

J. S. Haldane, *Materialism
The Sciences and
Philosophy*.

J. Arthur Thomson,
Concerning Evolution.

C. E. M. Joad, *Mind and
Matter*, especially Chapter
IV.

C Lloyd Morgan, *Emergent
Evolution*.

Life Mind, and Spirit.

Henri Bergson, *Creative*

Evolution.

J. C. Smuts, *Holism and Evolution* F.

Younghusband, *The Living Universe.*

W. McDougall, *Religion and the Sciences of Life.*

Modern Materialism and Emergent Evolution

Body and Mind An Outline of Psychology

A. N. Alexander, *Space, Time, and Deity.*

L. J. Henderson, *Fitness of the Environment.*

J. Needham, *Man a Machine.* See also his summary in *Science, Religion, and Reality.*

Peter Chalmers Mitchell,

Materialism and Vitalism in Biology.

Among the works which deal with experiments on animals the following will be useful.—

H. "Dresch, *The Science and Philosophy of the Organism*. Also his paper in *Arch.f. Entwicklingsmeck*, 1902, XIV, 500.

Jacques Loeb, *The Organism as a Whole*
Artificial Parthenogenesis and Fertilization.

—*Dynamics of Living Matter*

Theodore H Savory,

CHAPTER 14: CONCLUSION

IN the preceding chapters I have attempted to present an outline of the controversy between those who have advocated a deterministic system in the Universe, this system including in many cases the actions of human beings, and those who have maintained that the Universe is not a closed system The arguments have been briefly summarized and readers have been left to judge for themselves,

philosopher "there is no new thing under the sun." The problem which has been discussed in the present work is very old and also very new, and yet we do not appear to have solved it for good. It is even conceivable that it will arise in a new form in the future, perhaps not so far ahead, and philosophers, physicists, and biologists will find that the controversy centres around some new discovery which has revolutionized men's outlook on the Universe. Even then the old problem may still remain where it

“The riddle of matter is still unsolved, but it is reduced to the problem of the ultimate particles. The solution of this problem is the task of the physics of the future.”

*[The Restless Universe,
p. 277]*

Even then, assuming that more light is thrown on the “ultimate particles,” the particular problem which has been considered in this book may still remain unsolved. Those who have read the preceding chapters carefully will agree that it is

particular problem which has been considered in the present work are unconvincing. When the theologian enters the arena his armour proves very ineffective against modern methods of attack; and it is now impossible to hope that *Revelation*—a favourite armour of the past—will afford any protection in the future. As the Dean of St. Paul's reminds us.

“An impassable gulf separates the modern theologian from the whole

past of his science. He cannot argue as his most revered predecessors argued, their presuppositions are not his”

[God in Christian Thought and Experience, p 114]

It is certain that theology will have very little influence in any future discussions of the subject.

Many are perplexed regarding the important question of moral responsibility, which seems to depend to some extent

on the problem of free will or determinism. Perhaps the following quotations from a very important philosophical work will be of assistance to them in their dilemma, they are taken from a recent book by Professor John Laird, and probably reflect the views of many at the present time.

“On the whole the plain statement that human beings are capable of insight into rightness, and of action in accordance with such insight, is one of

the best ways of indicating the primary difference between human beings and all other natural beings that we know of. Human beings are not, of course, infallible. There is much bad reasoning, much hollow and merely ostentatious moralizing among men. That, however, is not an objection. The insight is often quite genuine, and so is its influence. When mistakes are made, they really are *mistakes* and they would be wholly impossible in a being that

neither saw nor erred. Personally I would go further and hold that there is no intelligible sense of moral freedom except the sense that is seldom disputed, the truism, namely, that in a certain limited class of actions we are able to decide in accordance with what we believe (and sometimes see) to be right, and to act accordingly.

Such freedom does not imply that our minds are exempt from temporal causes at any tune. On the contrary we usually believe that

there is no such exemption. A man, we say, is not responsible, that is, cannot decide and act in the relevant moral way, if he is drugged or starved or in a fever. His lack of freedom in that case has temporal causes. Is it reasonable to account for his *lack* of freedom in this way, but to denounce that type of explanation altogether when the drug wears off, or when the man is fed or bled?

This last, however, is an interpolation of my own. Let it be forgotten if it

proves to be too perplexing”

[Theism and Cosmology, and Mind and Matter. The Gifford Lectures in the University of Glasgow in 1939-40. The quotation is taken from the second series, pp. 248-50]

This question of moral responsibility is beset with many difficulties, and even the philosopher-theologian is not always, convincing when he attacks the problem. In concluding this

work it may be useful to examine the views of an eminent theologian and philosopher who has dealt with the subjects of moral responsibility and freedom of the will. The survey must necessarily be brief, and it will be possible to consider only a few of the tenets of Dr. W. Temple, Archbishop of Canterbury, whose versatile mind has been responsible for a voluminous literature covering a wide range of subjects. The present writer regrets to admit that he has found him very unconvincing, not only in

through seven impressions, completing 20,000 copies. The general line of thought is similar to that which was worked out in *Christus Veritas*, published in 1924, and there was ample time for readers to point out certain apparent contradictions in some of the arguments. These seem to have been repeated, however, in *Christian Faith and Life*, and a few of them will now be examined.

On p. 16 we are told that in the choice between the ends of life we discover a sense of obligation which is absolute “a sense of

impression that the Holy Spirit in some way had a share in the abominations. The whole of this argument requires a considerable amount of clarifying

Let us now turn to a more exacting work by Dr Temple. In 1934 *Nature, Man, and God* was published. This consisted of the Gifford Lectures delivered in the University of Glasgow from 1932-4, and the problem of free will is discussed in various parts of the work. We agree with Dr. Temple in his condemnation of theologians and Christian

apologists who rejoice at the discovery of supposed indeterminacy at the basis of the physical world. It is to be hoped that some of these will take very seriously his words in this connection “That anyone should be turned from Atheism to Theism by a belief that electrons act unaccountably seems inconceivable.” Although it is possible to take one’s stand with the Archbishop on this point there are many other positions adopted by him which it is difficult to accept.

In Lecture XIV, “Finitude

human mind to seek some explanation of the world in terms other than those of purely efficient causation. This last admission detracts very much from the value of the view that the problem of evil only exists for those who believe that the world is created and governed by God, which was affirmed in the previous statement, but we shall not enlarge on this flagrant contradiction. It will be sufficient to consider whether there is any real connection between theistic schemes and the problem of evil.

priesthood for various forms and ceremonies connected with birth, matrimony, and death, and who also adopt numerous cruel and immoral practices in their religion. Where is the theistic scheme in the Hindu Pantheon? The same question might be asked with regard to many other ancient religious systems which had little in common with theistic schemes and which, nevertheless, inculcated the sense of sin and evil in their adherents; but this is unnecessary, and we shall now look at some

of Dr. Temple's pronouncements in other parts of the work under consideration.

The question of responsibility for man's condition has been considered in different portions of the present work, and especially in Chapter IV, where we saw that Luther shrank from the view that God had predestined the reprobate to eternal loss, though Calvin adhered to this doctrine. Dr. Temple's method of dealing with the problem leaves the reader in some doubt regarding

the responsible agent, and he adopts a principle of probabilities in supporting his view, as the following quotation will show —

“Because it was not necessary that we should err, we cannot say that our sin is itself God’s act; it is our fault, not His, in the first instance But that we are finite selves is directly due to God’s act, and we cannot doubt that God foresaw the issues of conferring selfhood upon finite beings, so that sin falls within His purpose,

and is even part of it, though it cannot be said that He directly willed or wills it. What He faced was a probability so great as to be distinguished only in thought from certainty. I speak after the manner of men'. Of course there is, for God's *eternal* knowledge, no such thing as 'probability' but apprehension of all reality in its ordered completeness. Yet that distinction in thought is important. For it means that God did not directly cause any man to sin."

the decisive thinking which preceded the convictions expressed in the above passage took place during sleep. It makes certain *ad hoc* assumptions to support preconceived views, but it displays an inner knowledge of the working of the mind of God which is reminiscent of the mystic's visions, and which, to some men of science, must almost be suggestive of arrogance. A distinction is drawn between the eternal and temporal knowledge of God, and it is admitted that it is necessary to attribute both modes of experience

faced certain probabilities, though for His eternal knowledge there is no such thing as probability? Can we believe that we are finite through His act, that He foresaw what the consequences of selfhood conferred upon finite beings would be, that sin falls within His purpose, and yet by an assumption on probability He is completely exonerated? Moreover, this probability was so great as to be distinguished only in thought from certainty. It may not be presumptuous to suggest that Dr. Temple

but the problem still remains unsolved, and one great obstacle to its solution must be sought in the limitations of the human mind. The words of the physicist are a very appropriate conclusion to the matter —

“Through the victories of science, through the great theories in which we apprehend the harmony of the universe, through the development and progress of modern science, we become ever more profoundly sensible

of the disparity between the wealth and abundance of reality around us and the limitation and poverty of our comprehension."

[Leopold Infeld, *The World in Modern Science*, p. 274.]

REFERENCES

Below are some of the names of those who have associated themselves with the problem. In a few cases their writings have only a very indirect connection with the subject.

Democritus; date of birth given at dates between 490 and 460 B.C.

All are agreed that he lived to a great age.

Plato; 427-347 B C

Aristotle; 384-321 c BC.

Epicurus; 342-270 BC.

Zeno, founded his school

about the end of the fourth century B.C.

Dates of birth and death uncertain

Lucretius; 96-55 B.C.

Seneca; AD 3-65

Paul; AD 64c.

Marcus Aurelius

Antoninus, 121-80

Augustine, Bishop of Hippo; 354-430

Pelagius, dates of birth and death uncertain. His doctrine was heard of first early in the fifth century.

Thomas Aquinas; 1225 c -1274

Luther; 1483-1546

Calvin; 1509-64

Descartes; 1596-1650

XIII have an indirect bearing on the subject.

Sir Arthur Eddington

Sir James Jeans

Bertrand Russell

Dr. C. E in Joad

Prof. H Dingle

Prof. L. Susan Stebbing

GLOSSARY

Empiricism, dependence for our knowledge on mere observation and experience.

Entelechy a hypothetical principle endowed with purpose, which has been

unalterable laws, and that these phenomena are due to mechanical causes, not to final causes.

Ontological argument the argument used by Anselm, Archbishop of Canterbury in the eleventh century, to prove the existence of God. This argument was supposed to prove that the being than whom nothing greater could be conceived—*i.e.*,

God—must necessarily have real existence. This argument is not accepted by theologians to-day.

Parthenogenesis

reproduction from eggs which have not been fertilized by spermatozoa, the male element.

Pineal gland a small, cone-shaped body in front of the cerebellum, which Descartes believed was the seat of the soul.

Sheol the name given by the Hebrews to the place of departed spirits

Spontaneous generation the view that life arose spontaneously on the earth from dead organic matter

Teleology the doctrine that there is some final and divine purpose in the

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